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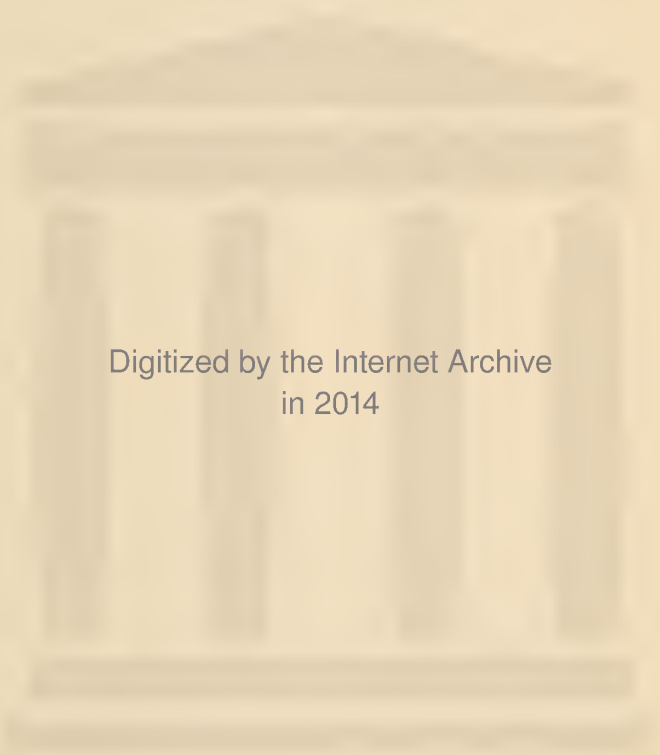

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By the Editor
1862

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THE

# VULCANITE.

## A QUARTERLY JOURNAL,

DEVOTED TO

## The Science of Mechanical Dentistry.

EDITED BY

B. W. FRANKLIN.

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# THE VULCANITE.

Vol. I. MAY, 1860. No. 1.

## INTRODUCTION.

The advent of another journal, mainly devoted to the elucidation of the science of Mechanical Dentistry, may be deemed by some as being a work of supererogation.

We should plead guilty to this charge, if Dental Journalism in this country had not, to some extent, fallen into the error of treating Mechanical Dentistry as a minor branch, a kind of incidental necessity connected with the practice of our profession. The improvements in *Artificial Dentures*, appliances for correcting irregularities of the teeth, and Dental Mechanics, generally, we think, justify the undertaking of a journal exclusively devoted to its interests. Our aim shall be to make it the Mechanical Dentist's *Friend*. We shall inform the profession of all valuable improvements, illustrating with cuts when practicable, in order that the reader may get a clear idea of the subject. We shall speak of inventions and improvements as their merits, or want of merit, may seem to demand, believing that honest criticism cannot harm aught that has truth for its foundation.

With this brief declaration, we send *The Vulcanite*, greeting, to our professional brethren throughout the world, trusting that this effort will be appreciated by them in the spirit which prompts the undertaking.

## VULCANITE, AND ITS USES.

The extensive and constantly increasing use of Vulcanite in the dental art, and its great importance to the profession, seem to demand from us a more full and exact statement than we have yet given, of the grounds on which we rest our claims to its exclusive use for dental purposes.

This we propose to preface by a brief history of the introduction of India-rubber into the arts, and of the rise and progress of the Vulcanized India-rubber manufacture under the Goodyear patents. Caoutchouc is the gum or sap of various kinds of trees, growing in the forests of South America and the East Indies. It is collected by the natives usually during the summer months, by tapping the tree, as in the process of making maple sugar in the Northern States. The sap is of a yellowish white color, but congeals almost immediately on exposure to the air, and becomes of a darker color. The black color is imparted to it by smoking it over fires made of the wood of the tree.

India-rubber was first known in commerce about the year 1770, when it was spoken of by Priestley as a substance just imported, and adapted to the removal of lead-pencil marks from paper, and an instrument-maker in London sold small pieces, about half-an-inch square, at three shillings each, for that purpose.

The first importation into this country was made about the year 1800 ; but it was not until the year 1820 that it was used for any other purpose than the one above-mentioned. In that year, India-rubber shoes, of rude form, were made by the natives of South America, and imported in small quantities. This afterwards became a large branch of trade, which continued until the pure gum shoes were entirely superseded by the more graceful ones made under the Goodyear patents.

About the year 1830, the manufacture of rubber clothing and other articles was commenced at Roxbury, Mass. The gum used in their manufacture was dissolved in spirits of turpentine, spread upon the cloth, and then dried in the sun. One great objection to this method of using rubber was, that it would grow stiff in cold weather, and become sticky in warm or damp weather. To obviate these defects, large sums of money were spent in experimenting, but without success, until the genius of Charles Goodyear discovered that by mixing sulphur with India-rubber, and subjecting the mixture to a high degree of artificial heat, the result would be a substance which would remain unaffected by any ordinary changes of temperature in any climate. This discovery opened a new field for

the exercise of the ingenuity of his countrymen, and initiated a branch of manufacture second in importance only to that of Iron. The trials and sufferings endured by Mr. Goodyear and his family, during the time he was perfecting his invention, would make a history more like a highly-wrought fiction than a record of the real experiences of life. Hunger and poverty dogged his footsteps, friends grew cold, and merciless creditors threw him from time to time into prison ; but his unfaltering faith in the ultimate success of his efforts sustained him through all these adversities, and he still lives to enjoy, in a good degree, the fruit of his labors. On the 14th of June, 1844, he obtained a patent for his invention, which he afterwards reissued, and which, on the 15th of June, 1858, was extended by the Commissioner of Patents for the further term of seven years.

The claims of this patent are as follows :—

"What I claim as my invention, and desire to secure by letters patent, is, the curing of caoutchouc, or India-rubber, by subjecting it to the action of a high degree of artificial heat, substantially as herein described, and for the purposes specified."

"And I also claim the preparing and curing the compound of India-rubber, sulphur, and a carbonate, or other salt or oxide of lead, by subjecting the same to the action of artificial heat, substantially as herein described."

No sooner had this patent been granted, than infringers upon it sprung up in every direction. The boldest and most persevering of these was Horace H. Day, of New Jersey, who fought the patent with an energy and skill, and a lavish expenditure of money, worthy of a better cause. In 1852, after one of the most severely contested patent trials on record, the United States Circuit Court, then sitting at Trenton, N. J., decided the case in favor of Mr. Goodyear, fully sustaining his patent. This decision put a stop to infringements for a long time, and no very important attempts have since been made to rob Mr. Goodyear of his dearly-acquired rights.

We now come to a new era in the history of India-rubber.

In the year 1849, Nelson Goodyear, a brother of Charles, being then employed in the manufacture of soft rubber goods, discovered that, by mixing with the rubber a much larger proportion of sulphur than was ordinarily used in the manufacture of the soft compound, and then subjecting the mixture to a high degree of artificial heat, a hard, stiff substance would be formed, entirely different in its character from vulcanized gum, and adapted to a great variety of purposes, such as combs, knife-handles, canes, &c. On the 6th day of May, 1851, he obtained a patent for this invention, which was sur-

rendered by his administrator, H. B. Goodyear, and reissued in May, 1858, in two patents.

The claims of these patents are as follows :—

"I do not wish to be understood as making claim broadly to a manufacture, or substance, produced by the admixture of caoutchouc and sulphur; nor as making claim broadly to a manufacture, or substance, by subjecting the compound of caoutchouc and sulphur, whether with or without other substances, to a high degree of heat; as, prior to the invention of the said Nelson Goodyear, caoutchouc and sulphur had been compounded, and such compound alone, as well as with other ingredients, had been subjected to a high degree of heat; but not to produce the manufacture, or substance, having the character peculiar to the said manufacture, or substance, invented by the said Nelson Goodyear.

What is claimed as the invention of the said Nelson Goodyear, deceased, and desired to be secured by letters patent, is, *the new manufacture or substance* herein above described, and possessing the substantial properties herein described, and composed of India-rubber, *or other vulcanizable gum*, and sulphur, in the proportions substantially such as described, and, when incorporated, subjected to a high degree of heat, as set forth; and this I claim, whether other ingredients be or be not used in the preparation of the said manufacture as herein described. I do not wish to be understood, however, as making claim broadly to the union of caoutchouc and sulphur in the proportions named, however these substances may be united and treated." And again:

"But what I do claim, as the invention of the said Nelson Goodyear, and desire to secure by letters patent, is the combining of sulphur and India-rubber, or other vulcanizable gums, in proportions substantially as specified, when the same is subjected to a high degree of heat, substantially as specified, according to the vulcanizing process of Charles Goodyear, for the purpose of producing a substance or manufacture, possessing the properties or qualities, substantially such as described; and this I claim, whether the said compound of sulphur and gum be or be not mixed with other ingredients, as set forth.

H. B. GOODYEAR,
Administrator of Nelson Goodyear, deceased.

Wm. H. Bishop,
Wm. C. Brown,
} Witnesses.

It has been often asserted, and many persons have been made to believe, that these patents did not cover the variety of Caoutchouc called Gutta Percha: an examination of the above claims will show how erroneous are such assertions.

The first right sold under these Patents was one to Conrad Poppenhusen, for the manufacture of artificial whalebone. This was soon followed by the sale of others for the manufacture of canes, boxes, buttons, combs, knife-handles, pencil-cases, and some other articles,—all of which are still made by the parties to whom the rights were sold.

In the year 1856, the Beacon Dam. Co.—now the American Hard Rubber Company of Connecticut—purchased of Charles Goodyear, and Henry B. Goodyear, administrator of the estate of Nelson Goodyear, an exclusive right to manufacture all articles for which they had not already granted licenses. Under this grant, this company carried on the manufacture of a great variety of useful and ornamental goods, such as syringes, tape-cases, powder-flasks, telegraph insulators, whip-sockets, martingale rings, jewelry, &c.

It could hardly be expected that the owners of rights of so much value, would be suffered to remain in the unmolested enjoyment of them; and no sooner had their value been demonstrated, than—as in the case of the soft compound—infringers began their work. The most formidable of these was the New York Gutta Percha Comb Co., which, backed up by a heavy capitalist, and managed by two of the most experienced manufacturers of India-rubber, engaged extensively in the manufacture of combs and other goods. Suits were immediately commenced against them by Mr. Goodyear for infringements upon his patents, which they made preparation to defend, and engaged eminent counsel for that purpose. The further progress of this suit, and its results, are told in the annexed circular, issued by the said company:—

*New York Gutta Percha Comb Co., to their Customers:*

You are aware that suits have been pending for some time between this Company, as defendants, and H. B. Goodyear, administrator on the estate of Nelson Goodyear, as plaintiff; and those who received the circular of this Company, issued in December last, were probably impressed with the fact that the Company felt sure they were right in their defence, and consequently had no fear as to the final result.

It was in this view of the case, and not with a disposition to infringe on the rights of others, that the business of the Company was established, and has been carried on; and it was not discovered until recently that certain proofs, mainly depended upon, could not be made available by practical demonstration; and what is worse, it was found that several of the witnesses, who all along were presumed to know all that was desired on certain prominent matters, when put

to the test of cross-examination, would fail in having the necessary knowledge.

On learning these new phases of the case, a consultation was held with George Gifford, Esq., the counsel of the Company, which resulted in a written opinion, as follows, viz. :—

*United States Circuit Court, Southern District of New York.*

HENRY B. GOODYEAR,
Administrator on the estate of NELSON GOODYEAR, deceased,
*versus*
THE N. Y. GUTTA PERCHA COMB COMPANY.

SIR,—I have subjected to a most thorough examination all the matters which you have furnished me to be used as a defence in the above suit, and as yet I have been unable to satisfy myself that they are sufficient for a successful defence ; and I find that our expert, on whom we most rely as an expert, is very much in the same state.

I am willing to serve you in any proper way, but unless I can be aided with more reliable matter of defence than I have yet found or had, I shall consider it useless for you, and professionally detrimental to me, to enter upon a trial in this case; for, as I now understand it, I am satisfied we should be defeated—a result which I never enjoy, and in all cases wish to avoid.

Yours truly, &c.,

(Signed) GEORGE GIFFORD.

*New York, April* 27, 1859.

To WILLIAM RIDER,
Agent New York Gutta Percha Comb Co.

Having the foregoing state of the case before it, with the often-asserted policy of the Company—not knowingly to infringe upon the rights of any one—there seemed to be but one course to pursue, which was to make an arrangement to protect the customers of the Company, and for closing up its business with as little loss as possible.

To this end negotiations were opened, which resulted in an agreement with Mr. Goodyear for the *release of all claims on our customers for damages, by reason of selling our goods heretofore, as well as for what they now have on hand.*

In conclusion, it is proper to say, that having read upwards of eighty English, French, and American patents on the treatment of India-rubber and Gutta Percha, and the chemists and workmen of the Company made over two hundred experiments on vulcanization, we

freely admit the justness of the verdict of the jury in establishing the validity of Mr. Goodyear's patent.

Holman J. Hale,
Vice-President N. Y. G. P. C. Co.
William E. Rider,
Treasurer N. Y. G. P. C. Co.

Another company, chartered in New Jersey, against which a suit was commenced, soon after failed in its business, and the suit was consequently dropped.

We come now to a portion of the history of these patents more particularly interesting to the dental profession. As early as the year 1853, this material, prepared substantially in the same manner it is now used by the profession, was applied to the manufacture of plates for artificial teeth. Great opposition was manifested to its introduction; but it has gradually won its way into favor, until it is at the present time, more generally used than any other material. Among the earliest to adopt the use of it in their practice was Dr. C. S. Putnam of New York, to whom Mr. Goodyear, in consideration of the interest he took in its introduction, gave the title to one-half the right for its use in the cities of New York, Brooklyn, Williamsburg, Jersey City, Hoboken, and Hudson City, New Jersey.

The grant to Dr. Putnam, however, provided that neither Mr. Goodyear nor Dr. Putnam should sell office rights for the territory in which they were mutually interested, without the consent of both parties. We are thus explicit in our statement respecting the rights of Dr. Putnam, because many have been led to believe, by means of a circular lately issued by Mr. K. A. Brigham, that they could obtain a right to use the Goodyear patents, by only purchasing the compounds they used of the said Brigham.

With the history of infringements upon these rights, the profession have been made acquainted by us from time to time as they have occurred, but this article would, perhaps, be considered incomplete without a more particular reference to them.

In the year 1858, L. E. Christopher & Co., of New York, having purchased of the North American Gutta Percha Co. a pretended right to use Gutta Percha in the manufacture of plates and gums for artificial teeth, opened an office in Bond street for the sale of office rights and vulcanizing for other dentists. They gave the name of CORALITE to their material, and induced many dentists to use it in their practice. As their proceedings were clearly in violation of the Goodyear patents, a suit was commenced against them by Mr. Goodyear in the United States Circuit Court; whereupon they

soon after sold out to Mr. E. A. L. Roberts, and left the city. The energy and tact displayed by Mr. Roberts in prosecuting the business commenced by Christopher & Co. must still be fresh in the minds of the profession.

Another suit was immediately begun against him, which he made preparation to defend, by employing able counsel and entering an appearance at Court ; but finding, on a thorough examination of the case, that a defence would be of no avail, he failed to appear at the time of trial, and a verdict was rendered against him, with costs ; and he has since paid damages to Mr. Goodyear. The decision of the Court in this case is as follows :

U. S. CIRCUIT COURT,
Southern District of New York, in equity,
*between*
HENRY B. GOODYEAR, Administrator on the estate of N. GOODYEAR, deceased,
*Complainant*,
*versus*
EDWARD A. L. ROBERTS, *Defendant.*

It appearing to the satisfaction of this Court, that the said defendant has infringed the rights secured to the complainant by Letters Patent, reissued to him on the 18th day of May, A. D., 1858, numbered reissues Nos. 556 and 557 :—Now, on motion of George D. Sargeant, complainant's solicitor, it is hereby ordered, adjudged, and decreed, that a perpetual injunction do issue out of and under the seal of this Court, restraining and enjoining the said defendant, Edward A. L. Roberts, his clerks, attorneys, agents, servants, and workmen, from making, manufacturing, and selling to others, any plates and bases for artificial teeth, or other articles which are made and manufactured of India-rubber, or other vulcanizable gum mixed with sulphur, or any equivalent thereof, either with or without auxiliary ingredients, in the proportion of about from four ounces to a pound of sulphur to a pound of gum ; and then subjecting such mixture of India-rubber or other vulcanizable gum and sulphur, or any equivalent therefor, to a high degree of artificial heat, substantially as described and claimed in the Letters Patent as aforesaid.

And it is further ordered, adjudged, and decreed, that the cause be referred to Kenneth G. White, Esq., the clerk of this Court, to ascertain and report the number of plates and bases for artificial teeth, or other articles that have been manufactured and made according to the process patented as aforesaid ; and also the number sold by the said defendant since the 18th day of May, 1858 ;

and also the profits which the said defendant has made or derived by the sale of said articles, so made and manufactured as aforesaid, since the time last aforesaid ; and upon the coming in and confirmation of said report, that said complainant have a decree and execution for the amount found due to him, aad also for the costs in the suit to be taxed.

*Dated New York, October 3d*, 1859.

A true copy. KENNETH G. WHITE, Clerk.

The assertion has been made by a respectable Western journal that Mr. Roberts was bought off by Mr. Goodyear, or the Hard Rubber Company. This assertion is, however, entirely without foundation. No inducement whatever was held out to Mr. Roberts to withdraw from the contest, and we challenge the editor of the said journal, or any other person, to produce the least proof that such was the case.

Soon after the suit against Mr. Roberts was commenced, another was instituted against Dr. O. A. Jarvis, of Bleecker street, which resulted in an injunction against him.

We have also obtained proof of infringements on the part of a number of other parties, against whom suits have been prepared, and would have been prosecuted before this, had not the death of Judge Ingersoll, almost entirely suspended the action of the United States Court for this District. Among others, we had prepared a suit against Doctor Dieffenbach of this city, for infringements upon the Goodyear patents, in vulcanizing or hardening his compound called Amber Base. On learning of our intention, we were waited upon by Doctor Dieffenbach, who, after a full examination of our claims, proposed to purchase of us a right for his own practice in this city, and issued a circular, which may be found on another page of this journal.

We have thus far instituted legal proceedings only against parties residing in this city, trusting that the result of such proceedings would deter others in other parts of the country from continuing infringements they had been induced to commence by parties residing here. Notwithstanding our repeated warnings, however, and the great care we have taken to have our rights well understood by the profession, we learn from the reports of our agents and licensees, that infringements are still carried on in many parts of the country. We presume many have been led into such infringements by those who have been selling a variety of compounds, some of them at exorbitant prices, representing at the same time that they could be used without infringing the Goodyear Patents. To

such we would say that none of the compounds which have been offered to the profession under the names of Coralite, Amber Base, Wheat's Compound, Brigham's Superior Gum, *free from Sulphur, nor any other vulcanizable compound*, can be used without the Goodyear's Patent, and also that the compound sold by us and our agents at $3.00 per lb. has stood the test of years, and is considered by such of our licensees as have tried all others, superior to any of them. We would also here repeat what we have before stated, that in no case, when we are obliged to commence a suit, shall we grant a license without adding to our regular price for an Office Right, all the expenses we may incur in its prosecution. We are disposed to deal liberally with those who respect our rights; but our general interest in the patents of Mr. Goodyear is too great to allow of our regarding as unimportant their least infringement. The price we charge the profession for a right, is small, compared with the advantages gained by its use, and the greatly increased business which is sure to follow its adoption. The reports we are daily receiving from all parts of this country and Europe, show that we have never overrated its value to the dental profession. No better evidence of this could be required than the list of names of our licensees, to be found in another column of this journal. As it is our aim to afford to the profession every facility in our power for the use of other material covered by the Goodyear patents, we have made arrangements with Dr. Dieffenbach, by which his compound can be purchased of him and used by all our licensees who wish to use it, without additional charge for the right from him to do so.

We would caution the profession against being imposed upon by travelling agents, professing to sell rights to vulcanize. All our agents are furnished with a printed certificate of their agency, signed by our Secretary. None of them are allowed to fill out or sign licenses; but their duty is to take orders, to be transmitted to us, and on their receipt, the license, duly signed by our Secretary, and Dr. Franklin, our general agent, will be forwarded from our office, No. 640 Broadway.

In conclusion, we would express our thanks to those members of the profession who have fairly and honestly accorded to us our rights; and would respectfully request that they will inform us, without delay, of any infringements upon them by others. Justice to themselves, as well as good-will to us, requires that they should do this; and in order that they may know who are and who are not infringers, we annex a list of all our Agents and Licensees.

## LOCAL AGENTS.

Wm. R. Hall,.....No. 832 Arch street, Philadelphia, Pa.
Wm. A. Bevin,.....13 Tremont street, Boston Mass.
J. M. Brown,.....cor. Fourth and Walnut streets, Cincinnati, O.
A. M. Leslie,.....No. 79 Market street, St. Louis, Mo.
Wm. Cahoon,.....Detroit, Mich.
E. F. Wilson,.....Rochester, N. Y.
A. Wilcox,.....Savannah, Ga.
N. Stebbins,.....Pittsburgh, Pa.
S. S. Blodgett,.....Ogdensburgh, N. Y.
H. Snowden,.....Baltimore, Md.
S. M. Robinson,.....Watertown, N. Y.
Jas. Payne,.....Bloomington, Ill.
Strickland & Robinson,.....Cleveland, O.
Hall & Kulp,.....Muscatine, Iowa.
A. W. Alexander,..... Charlotte, N. C.
Chas. B. Hammond,.....Laport, Cal.
Miller & Hale,.....Rockford, Ill.
A. P. Smith,.....Providence, R. I.
J. P. H. Brown,..... .....Atlanta, Ga.

## TRAVELLING AGENTS.

Geo. F. Foote,.....Cincinnati, O.
Geo. H. Perine,.....New York.
C. D. Porter,.....Bridgeport, Conn.
T. J. Griffin, Jr.,.....Providence, R. I.
Abiel Bowen,.....Batavia, N. Y.

## LIST OF LICENSEES.

Dr. C. G. Sumner, Norwich, N. Y.
" O. Munson, Washington, D. C.
" E. E. Crofoot, Hartford, Conn.
" J. M. Comegys, Brattleboro, Vt.
" A. A. Morgan, Rochester, N. Y.
" Martin & Woodby, Norfolk, Va.
" Chas. Merrit, Bridgeport, Conn.
" W. B. Finch, Kingston, N. Y.
" W. W. Allport, Chicago, Ill.
" N. Stebbins, Pittsburgh, Pa.
" J. A. Harris, Pontiac, Mich.
" Proctor & Allen, Rochester, N. Y.
" P. H. Austin, Baltimore, Md.
" Wm. R. Hall, Philadelphia, Pa.
" A. Dailey, Washington, D. C.
" Leo. Delange, Philadelphia, Pa.
" W. M. Wright, Pittsburgh, Pa.
" Atkinson & Hallowell, Cleveland, O.
" H. C. Wanzer, Rochester, N. Y.
" A. Blakesly, Utica, N. Y.
" Chas. B. Hammond, LaPort, Cal.
" McCall & Turner, Binghamton, N Y
" A. W. Kingsley, Elizabeth, N. J.
" Foster & Bennett, Jackson, Mich.
" A. W. Westlake, Rahway, N. J.
" Bardeen & Bro., Hamilton, N. Y.
" Wm. A. Bevin, Boston, Mass.

Dr. S. Martin, Meadville, Pa.
" C. H. Eccleston, Oxford, N. Y.
" S. S. Blodgett, Ogdensburgh, N. Y.
" John Mahoney, Richmond, Va.
" G. W. Jones, " "
" C. A. Thompson, Westfield, N. Y.
" Wm. A. Royce, Newburgh and Poughkeepsie, N. Y.
" C. W. Harvey, Buffalo, N. Y.
" Geo. E. Hayes, " "
" Thos. A. White, Detroit, Mich.
" B. F. Whitney, Buffalo, N. Y.
" F. C. Brown, Palmyra, N. Y.
" Wm. B. Van Vleck, Hudson, N. Y.
" Alfred Terry, Norwalk, O.
" Chas. L. Chandler, Syracuse, N. Y.
" Martin Bixby, Plattsburgh, N. Y.
" E. V. N. Harwood, Rutland, Vt.
" J. S. Bridgeman, Kendall, N. Y.
" Farley & Hewitt, Union Springs, N. Y.
" C. F. E. Blood, New London, Ct.
" H. N. Roberts, Ludlow, Vt.
" Swartly & Shult, Pennsburgh, Pa.
" Isaac Knapp, Fort Wayne, Ind.
" E. E. Duman, Detroit, Mich.
" V. Van Vleck, Hamilton, N. Y.

Dr. Martin & Woodby, Norfolk, Va.
" J. C. Gifford, Westfield, N. Y.
" Hawes Bro. & Seabury, Providence, R. I.
" J. Naramore, Rochester, N. Y.
" Fitz & Fulton, Louisville, Ky.
" A. B. Robbins, Meadville, Pa.
" E. S. Eddy, Providence, R. I.
" F. M. Foster, Jackson, Mich.
" A. Westcott, Syracuse, N. Y.
" Chas. Mills, Rochester, N. Y.
" J. B. Beers, San Francisco, Cal.
" D. Vandenburgh, Oswego, N. Y.
" P. G. C. Hunt, Indianapolis, Ind.
" Spencer Roberts, Philadelphia, Pa.
" B. A. Rodrigues, Charleston, S. C.
" Wm. Cahoon, Detroit, Mich.
" W. Ball, Walpole, N. H.
" S. M. Robinson, Watertown, N. Y.
" Jas. Chandler, Syracuse, N. Y.
" D. S. Goldey, Oswego, N. Y.
" J. M. Locke, Boston, Mass.
" G. W. Parmly, New Orleans, La.
" E. F. Wilson, Rochester, N. Y.
" D. S. Nolan, Boston, Mass.
" H. A. Austin, San Francisco, Cal.
" R. G. Snow, Buffalo, N. Y.
" B. S. Brown, " "
" D. D. & A. T. Smith, Syracuse, NY.
" Priest & Wells, Utica, N. Y.
" G. A Foster & Son, Utica, N. Y.
" N. Stevens, Batavia, N. Y.
" White & Weller, Durham, N. Y.
" C. Chatfield, Fairfield, N. Y.
" L. W. Rogers, Utica, N. Y.
" Spencer & Simmons, Providence, R. I.
" C. B. Porter, Ann Arbor, Mich.
" E. Salmon, Lima, N. Y.
" A. P. Smedley, Media, Pa.
" Sylvester & Jameson, Lyons, N. Y.
" B. Strickland, Cleveland, O.
" Hallowell & Daniels, Cleveland, O.
" M. J. Dickerson, " "
" Atkinson & Butler, " "
" A. H. Ambler, " "
" B. F. Robinson, " "
" W. P. Horton, " "
" D. C. Ambler, Jacksonville, East Florida.
" O. L. Elliott, Erie, Pa.
" A. Barrett, Ashtabula, Ohio.
" S. Ball, Auburn, N. Y.
" John A. Chase, Geneseo, N. Y.
" J. B. Rawson, Jamestown, N. Y.
" P. B Bristol, Dansville, N. Y.
" Geo. W. Spencer, Pittsburgh, Pa.
" T. A. C. Everett, Randolph, N. Y.
" David Steinburg, New York City.
" Wm. M. Hunter, Cincinnati, O.

Dr. J. A. & H. P. Pelton, Middletown, Conn.
" Bonsell & Smith, Cincinnati, O.
" Joseph Richardson, " "
" E. D. & A. R. Lord, Bellevue, O.
" A. E. Pursell, Madison, Ind.
" Dills & Gilbert, Peru, Ind.
" L. D. Walters, Lockport, N. Y.
" J. H. Farmer, Detroit, Mich.
" J. Mansfield, Niles, Mich.
" E. E. Dumon, Detroit, Mich.
" Wm. Clelland, " "
" J. H. Farnsworth, Detroit, Mich.
" R. V. Ashley, " "
" Whiting & Benedict, " "
" Job Smyth, Hallsport, N. Y.
" H. D. Bronson, Burlington, Iowa.
" J. A. Robinson, Jackson, Mich.
" E. Honsinger, Chicago, Ill.
" J. A. Perkins, Schenectady, N. Y.
" W. M. Martin, Providence, R. I.
" Jas. Taylor, Cincinnati, O.
" C. H. James, " "
" P. Knowlton, " "
" C. C. Beilharz, Tiffin, "
" J. F. Canine, Columbus, Ind.
" M. W. Small, Woonsocket, R. I.
" M. B. Johnson, Janesville, Wis.
" Wm. H. Shattuck, " "
" Greenleaf & Son, Peoria, Ill.
" Miller & Hale, Rockford, Ill.
" J. A. Scroggs, Galena, Ill.
" J. F. Siddall, Oberlin, O.
" Peebles & Dunham, St. Louis, Mo.
" Aaron Blake, St. Louis, Mo.
" C. W. Spalding, St. Louis, Mo.
" E. L. Green, Louisville, Ky.
" Samuel Mallett, New Haven, Ct.
" T. H. Burras, New York City.
" Hall & Kulp, Muscatine, Iowa.
" E. F. Davis, Galesburgh, Ill.
" E. C. Sohn, " "
" Robert Dennis, Peoria, "
" C. T. Metcalf, Providence, R. I.
" L. A. Rogers, Grand Rapids, Mich.
" A. W. Alexander, Charlotte, N. C.
" Shirley & Retter, Jacksonville, Ill.
" Chas. E. Butts, Belleville, N. Y.
" J. Flaeger, Evansville, Ind.
" Jos. Payne, Bloomington, Ill.
" Geo. Paterson, Augusta, Ga.
" W. H. Noble, Mt. Morris, N. Y.
" H. N. Wadsworth, Washington, D. C.
" Ed. Hale, Jr., St. Louis, Mo.
" J. W. Burrell & Co., Elyria, O.
" Geo. Watt, Xenia, O.
" S. & C. B. Galentine, Nunda, N. Y.
" L. W. Bristol, Lockport, N. Y.
" Murphy & Gates, Rome, Ga.

Dr. E. Shower, Nashville, Tenn.
" W. H. Morgan, Nashville, Tenn.
" R. Russell, Nashville, Tenn.
" F. J. S. Gorgas, Harrisburgh, Pa.
" A. C. Daniels, Brutus, N. Y.
" W. G. Oliver, Buffalo, N. Y.
" Chas. O. Hall, Hartford, Conn.
" Duval & Kern, Columbia, Tenn.
" C. W. Brown, " "
" J. H. Wayt, Charlotte, N. C.
" J. S. Brewer, Geneva, N. Y.
" Fisher & Deshauer, Chicago, Ill.
" Baker & Bush, " "
" G. W. Reese, Columbus, Ga.
" A. Hartman, Murfreesboro', Tenn.
" A. L. Wilkinson, Huntsville, Ala.
" N. Chittenden, Madison, Wis.
" L. C. Chisholm, Tuscumbia, Ala.
" A. Rice, Spencerport, N. Y.
" T. M. Henley, Bruington, Va.
" Johnston & Harris, Memphis, Tenn.
" R. B. Coleman, Orionville, Mich.

Dr. E. L. Thurber, La Grange, Tenn.
" J. L. Milton, Grenada, Miss.
" J. B. McClure, Carrollton, Miss.
" Heald & Locke, Portland, Me.
" J. A. Nichols, Lowville, N. Y.
" K. T. Hurlburt, Port Byron.
" J. Smith, Dover, N. H.
" J. D. Harbert, Galesburgh, Ill.
" Dennis & Mead, Providence, R. I.
" R. G. Reynolds, Waterbury, Conn.
" A. J. Young, Dover, N. H.
" Pray & Russell, Great Falls, N. H.
" M. S. Eldridge, Providence, R. I.
" B. F. Smith, New Orleans, La.
" Knapp & McLane, N. Orleans, La.
" J. S. Clark & Fredericks, New Orleans, La.
" T. J. Hopper, New Orleans, La.
" A. W. Todd, Montgomery, Ala.
" Alfred Martin, Attleboro, Mass.
" Ambrose Lawrence, Lowell, Mass.
" S. L. & W. G. Ward, " "

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# To the Dental Profession.

It is well known to the profession that I have, within the last two years, made important improvements in the Dental Art, for which I have taken out and now own four different patents. One of the most important of them is my compound for bases and gums for artificial teeth, which is so well and favorably known as "Amber Base." I have used this base extensively in my own practice, but it is only within the last year that I have offered it to the profession generally.

In offering it to the profession I have thought and do honestly think, that the preparing and selling my "Amber Base" is no infringement upon the Goodyear Patents, and which fact has been acknowledged by them and their agents; but on learning, however, that the American Hard Rubber Company, owners of the Goodyear Patents, were preparing to commence a suit against me for infringement upon their rights, I thought it judicious to take legal counsel in the matter; and after a full and careful examination of all my own and the Goodyear Patents, I am advised that my process of vulcanization, as well as the molds used by me in that process, are covered by the Goodyear Patents. I have therefore made arrangements to obtain from them Office Rights for any part of the United States

for those who wish to use my compound. I wish it, however, to be distinctly understood by the profession generally, that my compound is not an infringement; *but vulcanizing without a license from the Hard Rubber Company cannot be done without infringing upon their rights.*

The price of these Rights will be $100, and will protect all such licensees in using and vulcanizing the "Amber Base," Hard Rubber and Gutta Percha; and also the flasks patented by Charles Goodyear. I am also prepared to sell any quantity of my "Amber Base," for cash orders, at the rate of $8 per pound.

I have also for sale my white mineral for filling teeth; and dentists, as well as patients, who have tried this, have acknowledged it to be the best of its kind. It is a soft substance, but it hardens in two minutes completely.

It is not effected by the stomach acid, nor by the saliva. It is easily applied in the most difficult cases—not excepting cases where no other filling, not even gold, could be used. It is more durable than metal fillings, and, having tried the same during the last three years, I can assure the profession that there is nothing in the market which can compare with the Dentine in efficacy. Dentists wishing to try this new Dentine, in order to convince themselves of its superior qualities, will please address G. & F. Dieffenbach, 389 Canal Street, New York, who, on receipt of $5.00 per ounce, will forward it to any part of the United States, with full directions for its use.

G. DIEFFENBACH.

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## STATE OF DENTISTRY IN 1860.

*"Necessity compels and aids invention."*

Within the short period of thirty years, the *arts* and *demonstrations* of *dentistry* have, by the cultivation and advancement of its American practitioners, been exalted from comparative obscurity into the foremost rank of surgical science.

As to the antiquity of dentistry and its practice among the ancients, *Herodotus* makes mention of the *tooth-doctors* in Egypt during his reign, and from other antiquated records, that this art was (*however rudely*) practised at an early day. During the commencement of Christianity at *Rome*, one of the writers of that time left evidence of the capacious extent of his theoretical knowledge on this subject, in representing that the cause of *tooth-ache* was known only to *God*. From this period to the seventeenth century, it does not appear that any part of this science was practised,

except the simple dextrousness of *tooth-pulling*, and that with very rude instruments. In the latter part of the eighteenth century, dentistry was practised and successfully revived in *Paris*, and from thence introduced into America, at or about the period of the Revolution, by the surgeons who accompanied our French allies, as well as by special practitioners.

In and about the year 1820 there were not probably over *thirty* practising dentists in the whole United States, but there were so many improvements, and mechanical dentistry had progressed with such rapid advancement, especially in preparing *artificial teeth*, that, during the year 1830, there were then about 200 dentists. According to an estimate in 1842, there were at that time 1,400, and, in 1848, some 2,000. In 1850 the census reported 2,923 practising dentists; and now, in the year 1860, from the most authentic information, there are 5,000 persons engaged in the practice of this most enticing profession in this country.

At the World's Fair, held in London in 1851, American dentistry was acknowledged to be the first in the world; and the profession since that time has, by greatly adding to its achievements, gained a position among the *arts* and *sciences* which, it is hoped, it will long continue to maintain.

Of the various publications on dentistry, there was one as early as 1728, by that justly styled *pater dentistæ Fauchaud*, of Paris, in 2 vols. 12mo, of 900 pages, which was the first attempt to systematize this dental art as a distinct branch of *medical science*. During the next succeeding fifty years some half dozen valuable dental works were published. The first English work was by Thomas Berdmore, in 1768, who was rewarded for his professional excellence by being appointed *dentist to the king* (*then George III*). In 1771 and '78 the two principal works, by Dr. Hunter, were published. Dr. Blake published a treatise in 1798, and Fox in 1806. There have been not less than one hundred treatises on this subject by *American authors*, many of which are still in print as standard works, and essential to the completeness of dental libraries. The first was published in 1801, a second in 1802, and a third in 1819, since which there has not been a year without some valuable addition to this list of our dental literature. The largest and most important works on dentistry have been prepared and published by Dr. C. A. Harris, of Baltimore. His Principles and Practice of Dental Surgery, since its first publication, in 1839, has been revised five times, doubled in size, and universally acknowledged to be the best text-book, on this subject, in any language. A Dental Diction-

ary has also been published by the same author, is a work of high repute, and has passed through two editions.

Of the various periodicals on dentistry, the first and most important was the *American Journal of Dental Science*, published quarterly, and edited by Dr. C. A. Harris, in 1839. From 1840 to 1850 it was conducted under the auspices of the American Association of Dental Surgeons.

The *New York Dental Recorder*, a monthly journal, was commenced September 1st, 1846, under the fostering care of Dr. J. S. Ware, who, after very ably conducting it for some time, transferred it to the late lamented Dr. C. C. Allen, who, after three or four years, associated with him, in the editorial department, Dr. Hill, of Norwalk, Conn. It was finally transferred to the charge of Messrs. Sutton & Raynor, and expired under their management.

The *Dental Intelligencer*, by S. W. Stockton, of Philadelphia, was commenced in November, 1844, as a monthly periodical, at the very moderate price of $1 a year—so remarkably cheap it only lived about two years.

The *Dental News-Letter*, edited and published in Philadelphia, by Jones, White & McCurdy, 1847, was one of the most ably conducted journals; continued through its twelfth volume, and suppressed, to make room for its successor, the *Cosmos*, New series. A monthly record of dental science, edited by Drs. White, McQuillen, and Zeigler, Philadelphia. First number issued August, 1859. This journal has already established a reputation for professional improvement more useful and successful than any journal that has preceded it in this country.

The *Dental Register of the West*, a quarterly issue, published at Cincinnati, commenced October, 1847, edited by Drs. Taft & Watt. It has lately passed into the hands of Dr. J. T. Toland, former publisher, and converted to a monthly. This is a most able and popular dental publication.

The *Dental Record*, commenced under the auspices of Dr. J. T. Toland, Cincinnati, May, 1858.

The *New York Dental Journal*, edited by Frank H. Norton and Geo. H. Perine, commenced 1858. No. 1, vol. 3, was issued in January, 1860; contains much useful practical matter, and is intended to keep the profession posted in the great improvements of the day.

The *American Dental Review*, Dr. A. M. Leslie, proprietor and publisher, issued quarterly, at St. Louis, Mo.

The *Dental Lamp*, a quarterly periodical, published at Cincinnati, Ohio, by J. M. Brown.

The *Dental Enterprise*, published at Baltimore, Md., monthly, by H. Snowden.

In all Europe there are not more than *two* or *three* journals published, even at the present day. The *Odontotechnique*, published by Dr. C. S. Putnam, in Paris, and the *Dental Review*, of London, (No. 1 of the second volume just received,) are about all of any note devoted exclusively to the interests of this profession.

Besides these journals and publications, having for their object the elucidation and advancement of dentistry in America, we have the varied State and local dental societies, and three very successful dental colleges, the anniversary graduations of which have just taken place, and new candidates for *dental honors* have been sent forth to represent this most reputable profession.

Most of the dentists now in practice have received their education and training for the profession by studying privately under the direction of some regular practitioner—by observing his daily treatment of cases, assisting in the laboratory, and, as increased experience would justify, taking an active part in some practice until, after a period of two or three years, they may become sufficiently competent to commence the practice of this vocation. Many now in practice are regular graduates of medical universities, and not a few have been engaged in medical and the practice of other learned professions, who have been attracted by the allurements of dentistry.

But, with the advancement of dental science in America, and the consequent demand for an augmented education of its practitioners, it was evident that persons intending to become dentists would be best qualified for their duties by a systematic course of teaching and training in a special school of dentistry. Some of our medical institutions, in order to aid those who were particularly devoted to dental surgery, have, at various times, established lectureships for that purpose. The New York Medical College, at its sessions of 1852 and 1853, had a course of lectures on this subject by the late Dr. C. C. Allen. The best means for obtaining a full dental education is private instruction, and a combination of the advantages of *medical* and *dental* colleges, as has been abundantly proved by the success attending those who have thus been qualified. Our dental colleges do not seek to undervalue this preparatory study and training of private preceptorship, but make it a condition of graduation, that the candidate shall have thus studied for at least two years.

This country has the honor of having been the first, and *(until very recently)* the only one, to establish special institutions for instruction in dentistry. The value and feasibility of this system of tuition has been fully demonstrated by the success attending our

Dental Colleges, one of which, the *pioneer* in this department, is located in the city of Baltimore, and has just passed through its twentieth annual session. The Ohio College of Dental Surgeons, at Cincinnati, has also just finished its fifteenth session, and the Pennsylvania College of Dental Surgeons has also just passed a very prosperous and successful session ; the usual lectures commence on or about the 1st of Nov., and terminate on 1st of March, having a Faculty of eight Professors—viz. : Principles of Dental Science and Practice of Dental Surgery, Therapeutics and Materia Medica, Mechanical Dentistry, Chemistry and Metallurgy, Anatomy and Physiology, Microscopic and Comparative Anatomy of the Teeth, Demonstrator of Mechanical Dentistry, and Demonstrator of Operative Dentistry. The Infirmaries attached to the institutions are generally supplied by persons who desire to have operations performed free from any pecuniary charge, affording every opportunity to teach the young "idea how to shoot." The New York College of Dental Surgeons was chartered about 1850 ; was located at Syracuse ; Dr. Amos Westcott was appointed Dean ; but, somehow or other, this institution was strangled in its infancy. Why a Dental College has not been established in this, the empire city of the world (*in dentistry, at least*) I cannot divine. For the past three sessions of the Senate and Assembly I have been called upon to protest and remonstrate to the passage of an act to establish a Dental College in this city, petitioned for by parties unknown to the profession in this city, evidently gotten up by interested parties to make money. Almost every State now has its Dental Society or Association. The *American Society of Dental Surgeons* was organized 1840 ; held its annual meetings on the first week in August at the following places :—Philadelphia, 1851 ; Newport, 1852 ; West Point, 1853 ; the place designated for the meeting of 1854 was Cincinnati, but it was not organized, owing to the cholera, since which the Society has been disbanded.

The *Society of Dental Surgeons of the State of New York* was formally organized, by a convention of dentists from all parts of the State, at the hall of the Medical College, in Crosby Street, November, 1847, and for several years it continued to flourish, having regular meetings of much interest to the profession ; it had one of the best dental libraries, and a good dental apparatus ;—through internal dissension it was broken up, its effects sold at auction, and the proceeds divided among its members. The Pennsylvania Association of Dental Surgeons was founded 1845 ; the Dental Association of Alleghany County, founded 1852 ; the Mississippi Valley Association of Dental Surgeons ; the Indiana State Dental Society ; the Western Dental Society, comprising the States of Missouri, Illinois, &c. ; the

St. Louis City Dental Association ; the Georgia State Dental Society ; the Michigan State Dental Society ; the New York State Dental Society, and the New York City Dental Association ; and the profession is also further represented by a delegated body, the National Dental Convention, the first annual meeting to be held at Washington, D. C., 17th July next, and the American Dental Convention, the next annual meeting of which will be held at Saratoga Springs, on Tuesday, 7th August.

If the foregoing list of Dental Colleges, Dental Associations, and Dental Conventions is any indication, this may emphatically be termed an age of improvement in art, and surely should be a proud era, and gratifying to the heart of every American, to contemplate the lofty superiority of genius which has given birth to so many noble inventions and institutions in the short period of our professional existence.

Artificial teeth were first invented in Paris, which continued to be the chief place for their manufacture until *American ingenuity* devised a superior article. Twenty years ago, not more than 250,000 teeth were annually manufactured in the United States, and a less number in Europe ; at the present time there are, probably, not less than five millions of mineral teeth annually manufactured in this city and Philadelphia, a considerable portion of which are exported to all parts of the world, including France, the country of their invention. The capital invested in this business alone amounts to upwards of $500,000, giving employment to a large number of persons, many of whom are women employed in molding, enamelling, &c. The manufacture of teeth at the extensive establishment of *Jones & White, at Philadelphia*, and some of the statistics indicating the progress of Dentistry from the amount necessary to conduct this business, and the amount of sales of some of the materials of their manufacture are as follows :—The brass molds they have in use amount to 700 in number, producing nearly 9,000 different shapes and styles of teeth, costing upwards of $18,000. Platina is the heaviest item of expense. Of this not less than 300 ounces are used every month for the pins of teeth, which, at the common price of $8 per ounce, amounts to $2,400 for this single item alone. This establishment employs about 100 operatives, the wages of whom amount to about $700 per week, and turn out 180,000 finished teeth per month. The amount of gold, in the form of foil only, sold by this firm, amounts to about $2,100 per week, or $109,200 per year. They have depots in Philadelphia, New York, Boston, and Chicago, beside agencies in other principal cities in both this country and Europe, and the value of their yearly production amounts to over the sum of $350,000. Although this country furnishes so rich

a fund of physical and intellectual wealth, and affords such vast and extensive variety of materials for greatness, still that has not prevented many of our young "wide awake" dentists, aspiring for foreign fame, from locating themselves in some of the principal cities of Europe. Dr. Brewster, formerly of Charleston, South Carolina, was the pioneer of American dentistry on the Continent; he located himself at Paris in 1835; after practising for several years, he amassed a fortune; is still in Paris, but not now in practice, having been succeeded by Dr. T. W. Evans, from Lancaster, Pennsylvania, in 1850. Dr. James Fowler, formerly from this city, established himself in Paris in 1855. We understand Dr. Fowler has already earned a reputation in France as an extraordinarily good mechanical dentist, and Dr. C. S. Putnam, also from this city. Dr. P. has lately undertaken the arduous duties of an editor and publisher. We have just received a number of his journal, styled the *Odontotechnique*. "*Jewrusalem*," what a name ! ! ! He has the agency in Europe for the *Vulcanite* or *Indurated Rubber*, as a base for artificial teeth. This is getting to be a very popular substitute for, and is likely to displace, both gold and silver for partial and temporary sets of teeth; but for complete and permanent dentures there is not, and I think the time far in the distance when there will be, anything to surpass the *continuous gum process*, *invented and patented* by Dr. John Allen, of this city. It is estimated that the 5,000 practising dentists in the United States have consumed annually $2,500,000 worth of *gold*, *platina*, and silver in plate, foil, &c., for filling and inserting artificial teeth. This amount is diminishing daily in consumption, by the introduction of the vulcanite for dentures, osteoplastic for filling, and other substitutes for those precious metals. The subjects for the *mechanical dentist* are of uncommon extent, and require all the skill and ingenuity the best minds can possibly command. Thinking men, acting upon known mechanical principles, are required to produce those perfect modern machines we now see in almost every department of society. His business brings in use the application of all the arts and sciences in his dental laboratory, and nature does not afford a hint, but *art*, directed by the magic hand of *science*, is taught to follow in her footsteps.

BURRAS.*

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## CONTINUOUS GUM BLOCKS, FOR THE VULCANITE BASE.

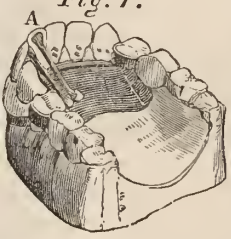
A NEW system of block-making has been developed, and its utility sufficiently demonstrated to entitle it to consideration with all dentists who have a furnace at command, and desire to excel in their

mechanical manipulations. This method secures all the advantages of carved blocks, without the objections and difficulties experienced in compounding the various materials which enter into their composition. The best silicious compounds for Continuous Gum Work, are found to possess all the requirements necessary for strong and beautiful blocks.

The manner of making blocks for partial cases, for the Vulcanite Base, from continuous gum materials, is as follows : after a perfect model is obtained, adapt a thin gutta percha plate to the space that the block is designed to occupy, and grind Continuous Gum Teeth to wax on the gutta percha plate, the same as plain teeth on metal plates. When the teeth are arranged as desired, remove them and the wax from the gutta percha plate ; clean the wax from the teeth and plate, oil the gutta percha where the block is to occupy, press tissue paper on the oiled surface, a little larger than you design the base of the block to be when completed. Now rearrange the teeth on the paper in their proper position, supporting them with a small roll or wire of wax, one end fastened to the teeth near their cutting edge, and the other to the gutta percha plate, behind the paper, to sustain the teeth in their position while applying the body, allowing the fangs to diverge a little more than is wanted when finished, as the contraction of the body in the process of baking will bring them slightly together.

The following cut, Fig. 1, representing a block of six teeth, arranged on a gutta percha plate, on a plaster model, with part of the wax supports removed. We now take Continuous Gum Body, wet with rain water, and fill in around the anterior side of the fangs, build out and carve the body into the form desired ; when the body is partially dry, gently remove the wax supports and fill in body on a line with the posterior surface of the fangs, leaving the pins in the teeth exposed. Now place narrow, thin strips of platina between the cutting edges of the teeth to preserve the spaces, and coat the body and teeth with a thick coating of shellac varnish. When the varnish is dry, take plaster and asbestos, equal parts, mix with water, and invest the body and teeth, being careful not to allow any of the investment to come in contact with the plaster model. When the investment has sufficiently set, remove the mass with the paper attached from the plate, and bake on a fine clay slab in the muffle of a common tooth furnace, with a heat at the melting point of fine gold, using a small piece of gold on the slab as a test to de-

*Fig. 1.*



termine when the body is sufficiently baked. After baking, allow the block to cool slowly ; when cold, remove the investment, and mix a little more plaster and asbestos for a bed ; and place on the slab, and press the base of the block into the mixture. When this mass has hardened, remove the block, and with brush and clean water remove all adhering investment. If any seams are visible, they may be filled up with fresh body—and apply the gum enamel. The block is then replaced on the bed and baked at nearly a white heat, or until the surface has flowed smooth and glossy. After baking the enamel, the block should be removed to a moderately-heated muffle, and when cold is ready for mounting, and is proceeded with in the same manner as a carved or molded block. The advantage of blocks made in this manner over molded blocks, is, that we can secure a better form, color, and arrangement of teeth ; and the block when mounted, if skilfully done, will present a much more artistic appearance than when the dentist is compelled to select blocks that are wanting in any desirable particular. Full dentures for the Vulcanite Base can be made from the same materials. A description of the manner of making, with cuts, will be given in the next number of *The Vulcanite.* F.

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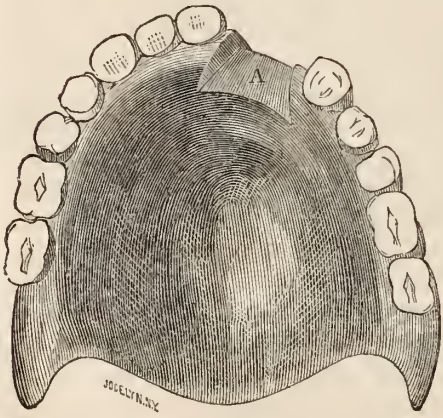
## REPAIRING THE VULCANITE BASE.

The following cut illustrates the best manner of repairing the Vulcanite Base. When a tooth, or section of teeth, has been broken, or the position of the teeth requires changing, we cut a dovetail in the vulcanite, as seen in the accompanying cut, A, No. 2, rearrange the teeth in the space as required, fill the dovetail with wax even with the surrounding vulcanite ; then fill the palatial side of the plate with plaster, allowing it to partially set before placing the case into the lower or first half of the flask ; we then cover all parts of the plate and teeth with plaster in the lower half of the flask, except the wax, in the dove-tail ; after the upper half is filled and separated, the

A, No. 2.



wax is removed from the dovetail, and gum is packed into the dovetail; the case is then vulcanized, the same time and degree of heat as required for a new case.

The extra heating slightly darkens the vulcanite. The color can be restored by using diluted nitric acid; the surface requires only to be wet. A wedge-shaped pine stick dipped into the acid and rubbed over the darkened surface is sufficient, care being taken not to allow the acid to remain too long on the surface. The acid should be thoroughly rinsed off, and the case placed in any alkaline solution for a few minutes.

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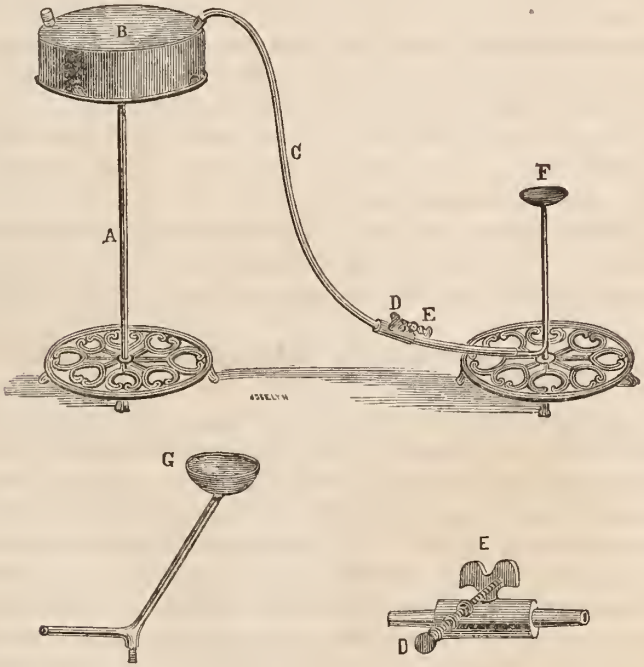
## FRANKLIN'S GAS AND ALCOHOL REGULATING FAUCET.

The three accompanying cuts illustrate the operation of this really valuable improvement for vulcanizing with gas or alcohol, and for soldering :—




A, stand; B, reservoir for alcohol; C, rubber tube; D E, *regulating faucet;* F, burner; D E, enlarged view of faucet and set-screws; G, extra burner for soldering purposes. When the reservoir is filled with alcohol, raise or turn it edgewise, tube down; the fluid will

immediately make its appearance in the burner F ; then set the reservoir on the stand ; the fluid will continue to flow till the reservoir is exhausted ; the flow is regulated by turning the thumb-piece of the faucet at an angle that will allow the proper quantity to pass to the burner E. The set-screw D is then turned up against the thumb-piece E, and the nut on the set-screw is turned up against the part through which the set-screw passes ; it will be seen that the reverse movement of the thumb-piece passes away from the end of the set-screw, and, if turned sufficiently, will shut off the flow when no longer required ; E, the burner, is funnel-shaped, requiring no wick. The tube acts as a syphon ; the reservoir being above the burner, a constant and uniform flow is kept up and controlled by this faucet, and no possibility of an explosion. G is a burner for soldering, and, when used, is screwed into the stand in the place of vulcanizing burner E, and is operated the same ; only a small quantity of wicking is folded and placed in the burner ; this will increase the combustion, and produce a strong and uniform flame.

When gas is employed, one end of the rubber tube is attached to a common gas-burner at the wall, and the other end to the burner under the heater or vulcanizer, and the flow of gas is controlled by the same operations of the faucet, as described above.

The cost of gas for vulcanizing two cases in Brown's copper heaters, measured by meter, was $1\frac{1}{7}$ cents ; alcohol, at 80 cents per gallon, 5 cents for the same number.

This apparatus has been much admired for its efficiency and simplicity, and is believed to be the most perfect appliance for vulcanizing and soldering that has yet been produced. Price, complete, $3.00.

The following is from the *New York Dental Journal*, Jan. No., p. 58 :—

"It is seldom, indeed, if ever, we have experienced more pleasure and satisfaction in witnessing the practical operation of any appliance to facilitate the labors of the mechanical dentist, than we did the other day in the working of this ingenious, but simple contrivance, gotten up by Dr. B. W. Franklin, for regulating the flow of gas and alcohol in the vulcanization of rubber and other gums.

"The copper heaters, so small and really neat in appearance, would be an ornament to any office ; and with this improvement, requiring so little attention, it seems to us will be highly appreciated by all who vulcanize their own work with gas or alcohol vulcanizers.

"Those heretofore in common use have been operated with coal, with stoves, &c., which, in warm weather, are more or less incon-

venient on account of the heat, but more in consequence of the constant attention required to keep the heat within a certain range.

"The advent of gas and alcohol vulcanizers, occupying so little space, so neat in appearance, and so simple in construction, must give an additional impetus to this really popular system of mounting teeth."

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## TO THE DENTAL PROFESSION.

For the purpose of diminishing, as far as possible, the danger of using steam at high rates of pressure, I was induced to institute a series of experiments, from which have resulted several improvements in the vulcanizing apparatus now used by the profession all over the country.

As the force of steam, when confined, at high temperatures, at any given rate of pressure per square foot, is in proportion to its volume, it follows that all waste room adds, unnecessarily, to the strain upon the vessel in which it is contained, and ought, therefore, to be avoided. In carrying out this principle to its legitimate results, I was enabled to construct a heater which holds about half the volume of any other before made which was capable of doing the same amount of work, and, consequently, other things being equal, reducing the danger of accidents in the same ratio.

To arrive at these results, I was led to construct an improved flask and clamp, which occupy little room in the heater, while they afford more room and better facilities for introducing the plaster and packing the gum. The clamp also combines the principles of the screw with the spring, so that the pressure is kept up while the flask is being warmed to soften the gum.

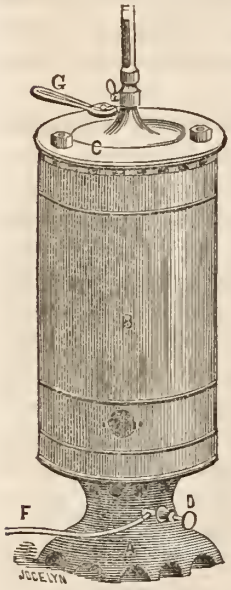
I have also so improved the thermometer, for steam purposes, as effectually to guard that instrument from breakage, except from the effect of concussion, it being without joint in that part of the case in which the Mercury tube is packed. The safety-valve also forms a new feature in this instrument. While it acts effectually in accomplishing the object indicated by its name, the ring and cone attached thereto enable the operator to let off the steam by the merest touch of the finger, and thereby control the pressure in a moment of time, and occupies about half the space of a lady's thimble. The vulcanizer is so constructed that it may be heated by gas, alcohol, or by placing it upon a common stove.

The pedestal upon which the heater stands is of cast-iron, and forms the burner for gas or alcohol. By removing the jacket and

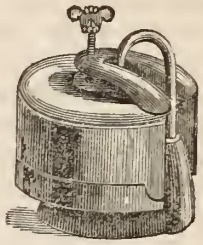
heater, it may be used for the various purposes for which heat is so constantly needed in the dental laboratory, and, of itself, forms a useful and ornamental piece of furniture.

The heater itself is made either of copper or cast-iron. Its inside diameter is $3\frac{3}{4}$ inches ; its depth 8 inches, and those made of cast-iron $\frac{1}{2}$ inch in thickness—the same as those formerly sent out, which were subject to a strain ten times as great, intending thereby to secure, so far as possible, absolute indemnity from danger of explosion.

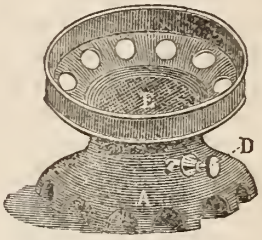
The accompanying cuts will convey to the reader a more definite idea than any written description.



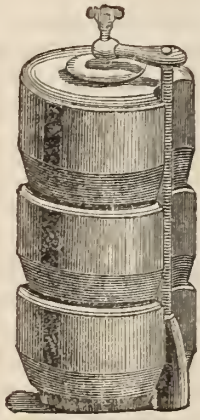

VULCANIZER.



ONE FLASK.




PEDESTAL.



THREE FLASKS.

*B* represents the vulcanizer, as in use. *C*, the thermometer, safety-valve, and cover. The cover is secured by three strong bolts. *G*, a handle placed over one of the nuts, by which the machine is grasped and held securely, while the nuts are being turned down with a wrench. *B*, the jacket of bright iron reflecting the heat from every direction upon the heater within. It should always be kept bright on the inside. On one side is a peep-hole, through which to inspect the flame. *A*, the pedestal, or burner, furnished with a flexible gas tube *F*, and thumb-screw *D*, to regulate the flame. The cut of one flask represents a flask and clamp for packing the gum. The foot is cast-iron. The stem is steel, with a

spring temper, and acts powerfully while the flask is being warmed to soften the gum. The lever and screw may be adjusted in any position upon the flask where the greatest pressure is required. The cut with three flasks represents the vulcanizing clamp, with three flasks in place, ready to be placed in the heater,—the screw downwards. Cut *D* represents the pedestal. *E*, gauze wire burner.

For further particulars, address Geo. E. Hayes, Buffalo, N. Y., or B. W. Franklin, No. 640 Broadway, New York City.

Also, see advertisement on another page.

Without intending, in the outset, more than to construct a single machine for the writer's own use, he has been induced by friends and members of the profession to place them within the reach of all. While in no point has strength or beauty been sacrificed to the principles of economy, they can be sold at prices which, it is believed, will be regarded as satisfactory by the profession.

Below are extracts from a few of the letters received from dentists who have used the machine.

*From B. W. Franklin, Vulcanite Agent.*

"I think your heater is the neatest thing yet produced. The thermometer is a perfect beauty."

*From Dr. Carr, of Canandaigua.*

"It heats up in twenty minutes, with the gas from a four-foot burner, and retains its temperature with the least possible amount of gas. Indeed, I do not think the apparatus can be improved."

*From Dr. Bristol, of Lockport.*

"Dear Doctor,—I have tried the heater you sent down, and it works like a charm. It cannot be bettered."

*From Dr. Wilson, of Rochester.*

"Dear Sir,—I was in Canandaigua, the other day, and saw a heater, of your making, which took my eye. I like it better than any thing I have seen."

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## PROCEEDINGS OF SOCIETIES.

### Sixteenth Annual Meeting of the Mississippi Valley Association.

#### DISCUSSION ON VULCANITE BASE.

(From "The Dental Register of the West.")

Dr. Atkinson said he was slow to adopt vulcanite base, but now thought it the best material in use, especially for lower grinders, when the front teeth remain. The vulcanite meets that case exactly. He exhibited a piece composed of vulcanite plate, with two molars

on each side, with which the patients eat hard food, immediately after its insertion, without in the least displacing it. With a perfect impression, we are sure of a perfect fit.

As claimed for continuous gum work, everything must be done perfectly, and success is in proportion to the pains taken.

When blocks are used with this work, he suggested that the canines be separate, that they may be placed sufficiently prominent to give the arch the natural curve. After the teeth are ground in place, he suggested the cutting of a dovetail groove in the sides of them to give the material a firmer hold. He thought the vulcanite was more pleasant in the mouth than the metal or porcelain plates, and it gave perfect control as to "plumpers."

Dr. Foote liked the vulcanite better than any other material for partial sets. In taking impressions for partial pieces, he preferred gutta percha. This should be boiled and worked till perfectly softened; then the surface should be chilled in cold water, to prevent its burning the mouth. The plaster should be immediately put in the impression. By covering the plaster model with tin foil before packing, he said, the surface of the base is improved. The tin may be dissolved off with hydrochloric acid. He considers the work sufficiently strong, and thinks a gold plate would bend before this breaks. He had never seen a tooth come off when "pins" were used. Dovetailing alone would not quite answer the purpose. Pin-teeth, he said, were stronger than others; and he would always advise the selection of strong teeth. This work, he remarked, can be mended two or three times, but by each vulcanization it is rendered darker in color and more brittle. He had not seen any difficulty with lower sets from its lightness, and he had yet to see the first piece of rubber work break. He charged the same for it as gold work, but not as much as for continuous gum.

Dr. Atkinson remarked that when vulcanized at too low a temperature, it was leathery; at too high a heat, it was brittle.

Dr. Foote said that when the temperature was too low, the work would taste and smell of sulphur, and turn black in the mouth; but when properly vulcanized, it would not. The "American Hard Rubber Company," he said, directed a temperature of 310 degrees, for three hours, but this would render the substance rather brittle.

Dr. Atkinson stated that it begins to vulcanize at 270 degrees; and, by giving time enough, that temperature would do. He thought the "three-hour gum" would be vulcanized by a temperature of 290 degrees, for four hours. Dr. Richardson said he liked the work, but would suggest a difficulty which was rather annoying, especially in partial pieces. The thing is to get it out exactly as it goes in.

In general, he said, there must be a superfluous quantity of gum material. This would press out and prevent the molds from coming accurately together. (Dr. Atkinson said that grooves should be made for the surplus to run out by.) Dr. R., resuming, said that the excess would not always follow the grooves; and that when the molds did not come accurately together, the plate was too thick. By this means the teeth were elongated, and their gums were, in partial sets, thrown off the natural gum. A remedy had suggested itself to him, and that is a deep groove around the matrix, as close to it as practicable, with gateways leading into it. He named, as another objection, that it insinuates itself between the teeth, and gives an unsightly appearance. To prevent this, he had inserted tin foil between the teeth and dissolved it out with hydro chloric acid, after vulcanizing. He likes the vulcanite better than gold work, and regarded, as not the least of its good properties, that it could be built out to any extent without becoming too heavy. He regarded lightness as an important property, and thought their weight was an objection to continuous gum work and cheoplasty. He had tried it in a case in which gold, silver, and cheoplasty had proved unsatisfactory, and was successful.

Dr. Foote, to prevent the surplus gum keeping the molds apart, digs a channel around, not too close to the teeth, and makes many small gateways into it,—these gateways widen as they go from the teeth. He puts tin foil around the teeth, on the plaster model, against which the gum is to be fitted. In answer to a question of Dr. H. A. Smith, he stated that if the lip would be rendered too prominent by the gum coming over the ridge, he would grind the teeth to rest on the natural gum, and rely solely on the pins to hold them in place.

Mr. J. T. Toland exhibited an upper set of teeth, mounted on "amber base," said to be vulcanized at 300 degrees, in four hours. It presented a neat appearance, and much more nearly approximated a gum color than the rubber specimens on exhibition.

Dr. Taft said he liked the vulcanite about as well as he did a year ago. As to durability, he thought it would prove satisfactory—would do about as well as anything else. Dr. Bousell's case, made in the association a year ago, presents now a little roughness. He had noticed the same in other cases. He thought the manipulation would still be much improved. He referred to the great improvements in vulcanizers, and remarked that the boxes, or cups (flasks), must also be greatly improved. The "guides" should admit of no lateral motion, for, when they do, the teeth are likely to be displaced.

The boxes should be improved; and only the best plaster should be used for molds.

Dr. Richardson remarked that the guides should be longer, and the clamps should be larger, so that they will go on the flask before their parts are brought close together.

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## SOCIETY OF DENTAL SURGEONS OF THE CITY OF NEW YORK.

A MEETING of the dentists of New York and vicinity was held at the Cooper Institute, on the evening of March 13th, at which preliminary steps were taken for the formation of a City Association. At subsequent meetings, a constitution and code of by-laws were adopted, and the following-named gentlemen elected officers for the ensuing year, viz. :—President, A. McIlroy ; 1st Vice-Pres., F. H. Clark ; 2d Vice-Pres., T. H. Burras ; Rec. Sec., E. C. Rushmore ; Cor. Sec., B. W. Franklin ; Treasurer, James T. Stratton ; Librarian, John Allen.

On the completion of the organization, the President-elect addressed the association as follows :—

GENTLEMEN OF THE NEW YORK SOCIETY OF DENTAL SURGEONS :—You have elected me to preside at your meetings during the first year of your organized efforts for mutual improvement and dental progress. For this mark of confidence and estem, you are entitled to my thanks and gratitude. It is also due to you that I should endeavor to understand your interests as members of this body, and aid in promoting those interests in an honorable and practical manner. And in this connection, let me say, gentlemen, that it seems to be a barren and narrow definition of a chairman's functions, which makes him a species of mental Bridget, just to keep the house in order. That friendly sympathy which prompted your votes, should be reflected from the chairman's desk ; and in a judicious exercise of that mutual regard, more may be accomplished for the prompt advancement of your avowed objects, than by the most rigid enforcement of all parliamentary rules. In the discharge of my duties, therefore, I shall rely on your kind coöperation.

It has often been asserted, that an organization of dentists cannot be maintained in New York—that there is an unusual want of harmony among them. This is a bold statement, in view of the fact, that even the last Society of Dental Surgeons, established in '47, flourished vigorously for six or seven years, improving its members, and bearing good fruit to others at a distance, through the columns of *The Dental Recorder*, edited by Dr. Charles C. Allen, one of its

most able and useful members. This society eventually dissolved, it is true ; but it had accomplished its mission. It was not expected to last forever. The most fertile organizations are not always the longest-lived ; and rapidity of change involves renewal of arrangements. As to the want of harmony complained of, I can only say that, if it be true, it must be owing to the social and political circumstances by which we are surrounded. The springs of human action here cannot be very different from what they are elsewhere. The most valuable prize—the most desirable residence, as fair Italy can testify—is sure to engender the fiercest struggles ; and a metropolitan reputation will always be most eagerly sought for by the greatest number. Besides, the absence of all legal restrictions or qualifications invites to professional life many who are unfitted by nature, acquisition, or association ; and in a social structure like ours, where the lines of distinction are so faintly drawn, it is inevitable that men of dissimilar tastes, habits, and education, will occasionally meet and clash. Still, from what I have seen abroad, where an entirely different social state prevails, I prefer this unrestricted, unconventional system, with all its ills. Beyond cavil, it is the only system which will develop the individual to the utmost, either for good or evil. As Christians or philosophers, we cannot doubt that the good, the true, the beautiful, will ultimately triumph.

Modern Dentistry,—the new era in dental science,—according to my chronology, gentlemen, dates as far back as the year of our Lord one thousand eight hundred and thirty-nine. It was begotten in Baltimore, and born in New York. I well remember the first throe of parturition, when the eminent Dr. Hayden, of Baltimore, wrote to Dr. Solyman Brown, of New York, requesting him to get together certain dentists of this city, to consider the propriety of forming a national association. Hayden knew his man. A primary meeting was called at Dr. Brown's house, in Park Place. That, at least, was a harmonious meeting. There were but four persons present,—Solyman Brown, the forerunner of good-will to dentists ; the late Dr. Spooner, the accomplished dentist, scholar, and gentleman ; that plucky son of Virginia, John Lovejoy ; and your humble servant, then junior partner with Spooner. You all know what followed Hayden's action. At the summons of a few great spirits in Baltimore, Philadelphia, New York, and Boston, men everywhere caught the enthusiasm : the American Association and American Quarterly were founded ; colleges, societies, periodicals were established. The prophet had stricken the rocky Horeb of the dental heart, and forth gushed a stream of intelligence which gladdened our thirsty tribe. Like true converts to a true faith, men went about relating their ex-

perience ; and that, too, without seeming to realize that, in teaching others, they were learning themselves, on the principle that we must get rid of the old matter before we assimilate the new. And you know what has been the result of this awakening. Compare the average surgical and mechanical dentistry of to-day with that of twenty years ago, and then compare the best efforts in those respective branches. Leaving aside a few old eminent names, it is as if the humblest dentarius had been quickly transformed into the accomplished dental surgeon. That, gentlemen, is as far back as I can trace the pedigree of Modern Dentistry—and "that is heraldry enough for me."

But of late years, while individual dentists in this city have been distinguishing themselves as among the most brilliant operators who have ever lived, we, as a body, seem to have relaxed our mutual essays at progression. Let us hope it is only "genius slumbering." Is it not time we had roused from this isolated, inglorious state? With the clarion voices of our Western brothers constantly ringing in our ears; with Baltimore, Philadelphia, and old London, in her learning, all straining in the fray, shall we, of this proud Empire City, remain mute spectators, or join our brethren in the holy crusade against human deformity and human suffering?

The stars, too, seem propitious, gentlemen. What place could be more appropriate for the birth of your association than this "Parmly Building," until now the abode of your art, in its highest form, and now just taken possession of by Asahel Jones and Samuel Stockton White? The conjunction in their courses of the time-honored dentist with the most successful dental merchant, and that old, renowned manufacturing name—each, in his orbit, a star of the first magnitude. To be born at such a juncture, without premeditation, is certainly a happy augury for the "New York Society of Dental Surgeons."

Monthly meetings are to be held for professional discussion, and quarterly meetings for the transaction of business. A good room has been secured, at No. 640 Broadway.

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Death of Dr. Blakesley.—At a meeting of the New York Society of Dental Surgeons, held on Wednesday evening, April 25th, Dr. B. W. Franklin was called to the chair, and the following resolutions were offered by Dr. McIlroy :—

*Whereas*, We, the members of the New York Society of Dental

Surgeons, have learned, with profound sorrow, of the death of Dr. Blakesly, of Utica;

*And whereas*, Dr. Blakesly has been so long and so prominently identified with our profession;

*And whereas*, We shall no more hear his earnest and instructive voice in our professional conventions, welcome him to our city as the courteous gentleman and honored dentist, or meet him at his home as the kind and hospitable friend,—therefore,

*Resolved*, That we tender to his bereaved family our heartfelt sympathy, and mourn with them the loss of so eminent and useful a man.

*Resolved*, That the Secretary be directed to transmit a copy of these proceedings to the family of the deceased.

# EDITORIAL.

## ANOTHER DENTAL PATENT.

Drs. A. M. Asay and J. L. Asay, of Philadelphia, have obtained a patent for an improvement in the method of fastening artificial teeth to metallic plates by means of the vulcanite. The Doctor exhibited to us a specimen of the work, which was decidedly the neatest piece of metal work we have seen in a long time; and if the Doctor had been so fortunate as to have made the discovery some ten years earlier, he certainly would have had a reasonable prospect of realizing a good thing out of it. His improvement consists in constructing block, either in full arches or sections, with holes or pins in their base, or otherwise; the plate is swaged and fitted to the mouth in the usual manner, and with a graver, raise a succession of *spurs* on the ridge where the block is to rest, or solder on staples or pins. When the plate and block are ready for mounting, a thin layer of prepared rubber is placed on the plate, and the block is pressed into it and vulcanized; and, when finished, a very thin line of vulcanite is only visible at the junction of the block and plate. In this method of mounting teeth on metal, the following advantages present themselves to our mind:—

1st. There is no liability of warping, or change of plate, or checking blocks.

2nd. The teeth are not weakened by the heat, as in case of soldering.

3rd. The work is entirely free from the objection to all gold work mounted in the usual manner: there are no joints or spaces for the lodgment of foreign matter.

And 4th. The work can be taken to pieces any number of times. This in many cases is important. By this process, the plate can be swaged over with very little trouble and expense; and in all cases of absorption of the alveolar processes, the work can be re-adapted with great facility.

Any information in regard to this matter can be obtained, we presume, by addressing Dr. A. M. Asay & Son, Philadelphia, Pa.

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## AMERICAN DENTAL CONVENTION.

We would call the attention of the profession to the following order of business from the Executive Committee, and suggest that full attendance will compensate all who have a desire to advance the interests of themselves and the profession. A great and growing influence will stamp this meeting as *The Convention.*

The Executive Committee report the following *Order of Business* for the meeting to be held at Saratoga, on Tuesday, the 7th of August, 1860:—

1st, Reading minutes of last meeting; 2nd, Reports of officers and committees; 3rd, Admission of members; 4th, Election of officers; 5th, Retiring President's address; 6th, Induction of officers elect; 7th, Miscellaneous business; 8th, Essays and discussions. All essays shall be read to open the discussions on the subject to which they relate, and they shall be limited to twenty minutes in length.

I. Artificial Dentures.—Preparing the mouth; materials for, and modes of obtaining impressions and models; various bases and their manipulations.—*Metals, Minerals, Gums.*

II. Structure and Nutrition of the Teeth.

III. Irregularities.—*Causes; Treatment*—Prophylactic and Remedial.

IV. Sensitive Dentine.—*Pathology. Cause; Treatment.*

V. Exposed or Wounded Pulp.—*Prognosis. Treatment*—Preservative, and, when devitalized.

VI. Diseased Dentine.—*Pathology. Causes*—Remote and proximal, including the effects of different diseases and medicaments upon the teeth. *Treatment*—Prophylactic, *general and local.* Remedial, *general and local*, including materials for and modes of filling.

N. B.—No member to speak more than fifteen minutes, or more than twice upon the same subject, without permission.

9th. Exhibitions of models, improvements, or inventions, with miscellaneous discussions or unfinished business.

GEO. H. FOOTE,
JOSEPH RICHARDSON,
T. H. BURRAS,
JEREMIAH MASON,
S. W. ROBINSON,
} Executive Committee.

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IT becomes our painful duty to record the death of Dr. Alvan Blakesly, of Utica, N. Y. The circumstances attending his death are of the most melancholy character. As near as we are able to learn, Dr. Blakesly left Utica about the middle of last month to recuperate his health, his system having become debilitated by constant application to business. His physician and numerous friends advised him to go South for a short time, in order, if possible, to regain his health. He stopped at a friend's a short time in this city, expressing a desire that no one should know of his being here, giving his reason that he was too unwell to see them. He took passage in one of the Savannah steamers, in company with an acquaintance of his from Utica; and, on or before their arrival at Savannah, Dr. Blakesly was missing, it being believed that he had fallen overboard and was drowned. The circumstances connected with his mysterious disappearance from the decks of that steamer may forever remain a mystery to man; but his many virtues, his companionable and gentlemanly deportment, and his efforts to elevate his profession by friendly intercourse, will be remembered by many who will ever cherish for his name the fondest recollections. It was to Dr. Blakesly's efforts mainly that crystal gold and crystal gold foil were introduced to the profession. He was among the very best operators in this country, having but few equals. The mechanical department of his business was superintended by himself, he being a finished mechanical manipulator, taking great pride in excelling in every department of his profession. He was among our oldest practitioners, having been in successful practice for about thirty-five years. It had been our good fortune to enjoy his acquaintance for the past twenty years; and, notwithstanding much of that time his health was but indifferent, yet, under all the depressing influences of ill health and a highly susceptible temperament, aggravated by the nature of his physical derangements, he habitually maintained his peculiar urbanity of manner, and courteous and gentlemanly bearing.

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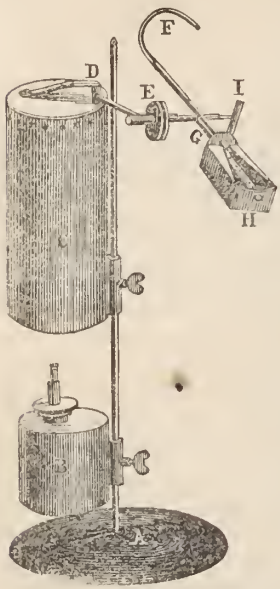
## SOMETHING ENTIRELY NEW.

SOME weeks since we were presented with a Blow-pipe by Drs. G. A. Foster & Son, of Utica, N. Y., of which the following cut is a good representation.

Among the advantages this Blow-pipe possesses over every other we have used for soldering are:—1st, The vapor of alcohol from the boiler furnishes the flame, which is more intense, as well as more uniform and economical than when a lamp and wick are used, for the reason that combustion is more perfect, and the pipe carries all the flame to the work to be soldered; 2nd, The flame can be carried in any direction the operator may desire. All that have seen it in operation are unanimous in the opinion that it is the best self-acting Blow-pipe they have ever seen.

We understand that *Dr. James Lewis*, residing in Herkimer county, N. Y., was the originator of this Blow-pipe. Mr. James Rich, of Utica, N. Y., is the manufacturer. Price, $14.00, and $16.00 for the double points.




A, stand; B, lamp; C. boiler; D, spring, resting on the end of a capped tube, through which the vapor or steam passes to the burner, and acts as a safety valve; E, coupling, to allow the pipe F to revolve. H is a metal box open at the top; through the end of this box, at G, is inserted a tube connecting with the tube and coupling; E, the end of the tube G, passing into the box H, and is perforated to allow steam or vapor to come out, and is ignited and furnishes the flame. F is the pipe passing through the end of the box about half an inch, and is the Blow-pipe proper; the curved end at F is simply a handle to guide the burner; I is a thumb-screw to regulate the force and size of the flame. This cut looks a little complicated, nevertheless the Blow-pipe is very simple in construction and efficient in operation. The steam or vapor passes from the boiler through the tube on which the spring D rests, passes through the coupling to a point where the pipe F crosses the tube between the coupling and the thumb-screw I; at this point of crossing the vapor separates, part passing through the orifice of the Blow-pipe, and part through the perforations in the tube in the box; the object of this box seems to be to prevent lateral currents of air from affecting the flame.

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Much of this number of the "VULCANITE" is occupied with matters relating to the *Goodyear Patents*, and the interest of the American Hard Rubber Company owners of said Patents, so far as they pertain to the vulcanization of the various prepared compounds for Gums and Plates for *Artificial Teeth*.

As many of the profession have been led to believe that the several prepared gums in market could be used without infringing these patents, we regard the exposition in this number important to that portion of the profession employing the vulcanite in their practice.

Several valuable papers on Metallurgy and Dental Mechanics are necessarily crowded out of this number, but will appear in our next. Those desiring the "VULCANITE" to be sent regularly to them, will send their name and address, enclosing 50 cents in postage stamps, or otherwise.

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# THE VULCANITE.

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For The Vulcanite.

## PALATINE FISSURE; ITS REMEDY BY ARTIFICIAL MEANS CONSIDERED.

BY CHAS. W. STEARNS, M. D.

Several years ago I devoted considerable time to the treatment of cases of Congenital Fissure of the Palate, by the application of an artificial elastic *velum*, made of the then newly-invented vulcanized Caoutchouc. My success, as often happens with new things, was quite remarkable in one or two of my first subjects, so that I was advised by several medical men of eminence to make the matter a specialty. I then passed nearly two years in Europe, and while there published several papers in the London Lancet, (August and September, 1845,) from which considerable extracts may be found in Braithwaite's Retrospect, (Part 12, Art. 117, page 194, Scribner's Am. reprint,) and in Harris' work on the Practice of Dentistry. But my success on the whole was not sufficient to warrant me in continuing to devote my whole time to that one subject in a foreign country; and, in the meanwhile, some changes had taken place in matters at home, which made it prudent for me to return. After which I dropped the subject for several years, but can give, in a few words, the net results of my first experience.

Altogether some eight or nine cases came under my hand for treatment at that time. The *first* was a young man of twenty-six years; the roof of the mouth was entire, but the fissure through the soft parts was very large, as two surgical operations had been performed in childhood. This first case occupied a great deal of my time for two years, and the result, I may be allowed to say, was astonishingly successful, as I shall directly have to confess my ill-success in other cases that followed close upon it. The *second*—a young man under thirty—was a very bad hare-lip case, with a large fissure extending through the roof of the mouth. He was considerably benefited; and, I am told, he continues to wear the instrument, and has been enabled to take some part in public business.

The *third*, also a young man, was a more favorable case, as the

fissure extended only through the soft palate, and which had been closed for half an inch at the apex by an early surgical operation, but leaving an oval aperture just below the margin of the palatine bones. This case, I doubt not, would have proved as successful as the first one, but the patient was obliged to leave and return to his business, in the southern part of the country, without allowing me time enough to finish my work. The remaining cases were treated in London and Paris. The first was that of a girl, about sixteen,—with fissure of the soft parts only. This was wholly unsuccessful! Although it presented no formidable or peculiar difficulties as to the proper adaptation of the instrument, yet the speech was but little, if at all, improved, owing, as I think, to the entire inability of the patient to move and place her tongue in the manner required to articulate certain consonant letters,—though she received daily instructions to that end for some two months. She seemed wholly unable to subject the movements of her tongue to the will, so as to place it as she was directed; and all her efforts to do so were quite at random. As may be supposed, the result of this case was quite discouraging.

The next was a young gentleman of eighteen, of good education, and with him the fissure was limited to the soft palate. He had for a year or two previously worn an ingeniously-contrived instrument, consisting of several gold plates, joined and lapped, like the scales of a fish, so as to move a little with the surrounding soft parts, and which was made by Mr. Nasmyth, then dentist to the Queen. He began to improve at once from the day I finished the instrument for him; and the last I saw of him he had progressed so as nearly to equal the result of my first eminently successful case.

The *third* case was that of a man over forty, where the fissure was not congenital, but caused by syphilis. The result in this was successful from the first, as might have been anticipated, as he required no instruction as to the movements of the tongue necessary for articulation.

The next was a lady over thirty, highly educated, whose case was of the hare-lip class,—the fissure being very large, and extending quite through the roof. My efforts with her case were, in great part, unsuccessful, though the patient herself seemed to be better satisfied with the result of my endeavors than I was. She also seemed, in great part, unable to subject the movements of the tongue to her will, so as to place it as instructed to do. I believe I now understand why this lady was not more materially benefited, though at the time it was to my mind inexplicable, for the features of this case exactly resembled the next one,—that of a lady, about twenty-five, of high respectability. Here, also, the fissure was very large, extending also

through the roof and alveolar sockets, so that the nares and sufacc presented one enormous, irregularly-shaped cavity, and requiring a most formidable-looking piece of mechanism to fill it. This lady very soon improved under vocal tuition, so that within the first fortnight she found that, when out "shopping," whatever she called for was instantly shown to her; and she had before this been greatly annoyed by not being able to make herself understood by the shop-people.

The last case hardly needs be mentioned,—that of a young lawyer's clerk, with fissure extending forwards about half-way through the roof. He got impatient under my manipulations before the end of a fortnight, and gave up the undertaking without allowing me time to complete the instrument.

This ends my *earlier* practical experience in undertaking to remedy defective palatine formations by artificial contrivances; and the result on the whole not being satisfactory to me, I ceased to seek further subjects, and soon became otherwise occupied, so that I was obliged to decline giving my time to them when offered, and therefore avoided any further publicity in the matter. A subject, however, which had for years interested me greatly, could not but continue to occupy my thoughts from time to time. The result of my reflections in the interval tended to make me aware in what points the instruments as at first constructed might be improved, and so afford a chance of more uniform success. The instruments, as at first made, were defective. 1st. By the use of flattened spiral springs, of great delicacy. These, though made of fine drawn gold wire, coiled three deep, and then rendered perfectly elastic by hammering and burnishing, were yet liable to accidental derangements by careless handling, and which at once impaired the efficient action of the instrument. 2d. The method of fixing the instrument in its place in the mouth was objectionable, (being the same that is much practised by dentists,) by clasps to the teeth. The consequence was, that the whole apparatus hung to the teeth forwards, while the velum behind had a tendency to droop and fall away, instead of remaining, as it ought, closely in contact with the surrounding fleshy parts. 3d. The form of the artificial velum was not perfectly adapted to the shape of the parts *out of sight*, that is, *behind* and above the edges of the fissure. The adaptation of the velum at those points being only approximate and casual.

About three years since, two important cases of palatine fissure were brought to my notice, and I was strongly urged to undertake their treatment. This afforded me a chance of trying such expedients as had occurred to my mind in the interval, for avoiding the three especial imperfections of my earlier work. Instead of the delicate

flattened spiral springs used at first, I now employed an elastic alloy of gold wire, made very thin and hard by hammering. This form of spring has answered the purpose so well as to leave nothing else to be desired. To support the instrument, and keep it snugly in its place, I now depend but very little upon clasps to the teeth, *but almost wholly upon the form of the artificial velum at its upper end;* at which point the flexible rubber is molded pretty thick, so as to have considerable firmness, and of such a form (that is, much broader at its upper end, than the width of the fissure) as to slide behind and hook on over the projecting shelf or edges of the imperfectly-formed maxillary and palatine bones, so that the use of the clasps to the teeth (and these clasps may be quite loose) is merely to steady the instrument, and prevent it from being carried backwards and downwards with the food in the act of deglutition. To place the instrument in its position in the mouth, it is necessary to thrust it gently backwards and downwards as far as possible, so as to pass the broad upper end of the velum behind and above the fleshy edges of the fissure, and then it is drawn forwards and upwards, so that its upper end finally rests upon the superior surface of the bony shelf; and, lastly, the clasps are slipped over the teeth, and the whole apparatus is thus firmly secured in its place without pressing or binding too hard at any one point, so as to be uncomfortable to the patient.

With this general account as an introduction, I will now proceed to consider the whole subject more in its practical details.

Cases of Congenital Palatine Fissure may all be classed under two species. 1st. Those in which the fissure extends only through the velum or soft palate, and leaving the palatine or maxillary bones forming the roof entire. 2d. When the fissure extends quite through the roof and alveolar sockets, and usually complicated with hare-lip; but, as happens in other malformations, these two classes often run into one another. Thus, I have seen several cases of the first class where the fissure extended from one-eighth to three-quarters of an inch into the posterior margin of the bony roof;—one case where the roof was entire, but yet there had been a double hare-lip. Another case, I recollect, where the lip was full and perfect, yet the roof was widely fissured quite up to the alveolar sockets, but leaving the teeth straight and regularly developed.

The late Doctor Arnott, of London, told me of a case he once saw, of a laboring man, whom he noticed was much given to the luxury of eating figs. Upon inquiring the reason of his thus indulging his appetite, he learned that the poor man had a large congenital opening through the bony roof, while the velum was entire, and he used the

skin of the fig to close the opening, as he found that by so doing he could speak much better!

In cases of the first class, the fissure through the velum is a symmetrical parabolic arch of muscular tissue, having its apex at the margin of the palatine bones; and, on each side, about an inch below, a small fleshy nipple-like process, and which are obviously the remains of the imperfectly developed uvula. Continuing downwards, as far or below the tonsils, the muscular fibres join and interlace with those of the pharynx, and in part with the base of the tongue, or are inserted into the bone.

This class of cases I regard as offering by far the most favorable chances for relief by the use of an artificial velum; and it is the only sort that the surgeon is ever justified in attempting to close by suture. These cases differ greatly from each other in the volume of muscular tissue forming the sides of the fissure, being in some subjects so thin and tense as to have but little muscular movement; in others they are round and thick, so that when in a state of relaxation or repose, they are seen to approach very near together. These are the rare cases where surgeons have succeeded by a masterly effort of operative skill in closing the opening by suture. They have also attempted numberless other cases, where, from scantiness of material, the operation has failed to result in a union. Dr. Arnott (author of Elements of Physics) told me of a case he had seen where the imperfection of speech was very considerable, yet, on looking into the mouth, the velum at first sight appeared perfect. By the slightest movement of the palatine muscles, however, as in speaking, the two halves of the velum were instantaneously contracted and drawn to each side so as to show a very considerable opening, which allowed the voice to escape by the nasal passages. In a state of rest the edges of the fissure were closely in contact, the effort to speak drew them to each side as one would a window-curtain. Such a case would not only offer no chance for the introduction of any artificial appliance, but plainly invite a surgical operation.

A great many of the less favorable cases of this class have been operated upon by eminent surgeons with various results. In two that I have seen, a firm union, with some degree of mobility, had been secured for a short distance below the palatine bones. In one, that Mr. Liston described to me as occurring in his own practice—a well-grown girl at the London (University) Hospital—he succeeded in getting a union for the whole length of the fissure; but after the parts were healed he found that, instead of a serviceable velum or muscular valve, capable of closing, narrowing, or opening the nasal passages at will, he had a rigid, fleshy septum stretched across from side to side;

and this septum was not only in the way of the ordinary movements of the tongue, so as to interfere with deglutition, but it also had the effect to divide or split the column of sound as it issued from the glottis, and so turn a part of it through the nasal passages. He was so dissatisfied with this result, that with one stroke of his bistoury he slit down the newly-formed velum, and undid, in a moment, all that a long and skilful operation, followed by patient attendance, had achieved.

Other cases that have been operated upon are to be met with, where, by dissecting off and freeing the soft parts, to some extent, from their attachments to the palatine bones, the surgeon has sought to overcome the difficulties caused by the want of material, and consequent rigidity of the parts. In this way a union at the lower part of the fissure has been secured; but there remained an oval-shaped hole above and just below the margin of the bone, where the edges presented scarcely more than a duplicature of the mucous membrane to be scarified and forcibly drawn together by suture.

There will usually be found a great uniformity in the shape and general appearance of the fissure in cases ranked under this first division, and the two sides of the opening are quite symmetrical.

In cases of the second class, where the opening extends through the palatine and maxillary bones, and usually accompanied by a hare-lip, which has been closed by a surgical operation in early childhood, a great diversity in the form and size of the opening will be met with. Upon first looking into the mouth, a large, shapeless cavity will be seen; but the fleshy part of the fissure is more symmetrical than that of the bony part, resembling, in this respect, the cases of the first class, excepting that the gap is usually much broader. The irregularity of shape is owing to the malformation and malposition of the bones forming the roof. Though the fissure through the bones may be nearly on the median line, yet, in the great majority of instances, the vomer or septum nasi is brought down so as to meet and articulate on one side with the plate of one or the other of the superior maxillary bones, thus forming one tolerably perfect *naris*, generally the one on the right side, while the other *naris* has no floor, but makes one continuous cavity with the fauces, extending upwards to the base of the cranium. In some cases of this second class, the opening will be found more symmetrical, having the septum or vomer incomplete, and which is seen dependent from the base of the cranium on the median line, but not reaching down far enough to intersect and unite with the plate of either maxillary bone, so that neither naris is completely inclosed, but both together form one continuous cavity with the mouth, the incomplete plates of the maxillary bones making a pro-

jecting ledge or shelf on each side, continuous with the fleshy edges below. And it is these firm projecting ledges, on one or both sides, that I make available for supporting the instrument, and keeping it firmly fixed in its place. The opening of the fissure through the alveolar sockets may be so wide as to equal the space occupied by two, four, or even six of the front teeth, but commonly the edges of the bony fissure at the region of the teeth are closely in contact, so as to seem, in fact, united, but any thin substance, like a quill tooth-pick, may be passed freely between them, showing that there is no continuity, but only close contact.

The cases belonging to this second class, as just described, will be found to require, from any one undertaking to relieve them by artificial appliances, all the skill in manipulation that he is master of, both in copying the malformation by impressions taken with plastic substances, and, after that, making an instrument from his models thus obtained that will correspond to the shape of the parts to be fitted at points *not visible*, as well as those in plain sight. *Hoc opus hic labor.*

The conditions required to be fulfilled in any successful attempt to construct an artificial palate, or "obturator," as it has been more briefly named, are a nearly perfect adaptation to the irregular shape of the opening, and a combination of the properties of elasticity and durability in the material of which the instrument is constructed. The vulcanized '*soft rubber*' possesses these in a remarkable degree, and which, added to its highly plastic quality, leaves hardly any better material for the purpose to be desired. In fact, the vulcanized "soft rubber" may, with some propriety, be termed, in this connection, *artificial flesh*, and the vulcanized "hard rubber," now much used by dentists, may, with even greater reason, be called *artificial bone.* The properties of the vulcanized soft rubber, in respect to durability, are quite remarkable when we reflect that, placed in the mouth, it is there subjected to the combined action of *five* destructive agents, viz: animal heat, moisture, motion, the salivary acids, and the oils of the food,—all acting together and incessantly upon it. When this is molded to the shape required, and, with a high degree of elasticity, it is yet flexible and soft as the finest kid, we may say that we are supplied with just the right material; and it only remains for us to make a good use of it. The *degree* of elasticity is a point that must be carefully attended to in manipulating the rubber, for, if the velum is made too hard and stiff, it will cause pain, and otherwise embarrass the action of the soft muscular parts with which it is in contact. If, on the other hand, it is too soft and yielding, it will not react or expand quickly enough, but will be liable to be clogged by food and the viscid fluids of the mouth; nor will it long sustain, as it

must do, not only the ordinary pressure upon it in speaking and swallowing, but also the more violent and spasmodic efforts of coughing, sneezing, vomiting, etc.

I will now proceed to explain, as clearly as I am able to do in words, the plans and methods I have used in adapting artificial vela to relieve the different forms of palatine fissure already described; and trust, by the aid of the accompanying drawings, to make myself understood by those who may happen to be especially interested in the subject.

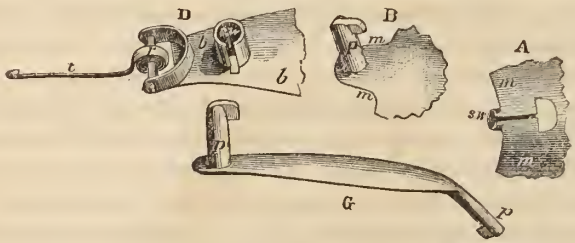
All cases require, in the first place, a plate or roof of gold, or some other convenient substance to be prepared, to the posterior margin of which the flexible and elastic velum is to be attached. Where the fissure does not extend into the bony roof, as in cases belonging to the first class, a narrow arch of gold plate from the molar teeth on one side to those on the other, will be sufficient for our purpose. But when, as in cases of the second class, the opening reaches far forward, then an artificial roof has also to be supplied; and plates made of gold are found too heavy; but the vulcanized hard rubber, by its combined lightness and strength, is much to be preferred. The plate or artificial roof having been properly fitted to the bony surface, the making of the velum is next to be proceeded with.

As the velum is to be fitted to the fleshy, and therefore mobile region of the fissure, its shape and size must be determined by a resort to some expedients other than what are used to get a cast of the bony portions; for it is manifest that however soft and plastic the wax or other substance might be, the sensitiveness of the fleshy parts would cause them to retract instantly from contact with a foreign substance; so that the form of the fissure must, for the moment, be changed to something different from what it is while in a state of rest. Added to this, the degree of pressure, however slight, required for taking an impression of parts that in fact have no more solidity than the lips or the tongue, must of necessity cause some displacement; I therefore resort to other means for getting the shape of the lower portion; but for the upper portion, say half or three-quarters of an inch above and below the point where the muscular fibres are attached to the bones, I am enabled to get pretty accurate plastic impressions. I have always found much greater irregularity in the form of the soft parts, *behind* the edges of the opening, and which are out of view, than is seen on the anterior surfaces, which are pretty symmetrical. This irregularity of the shape of the posterior surfaces is caused by the abnormal position and form of the palatine bones, to the edges of which the long slender muscles forming the columns of the soft palate are superiorly attached. The artificial roof being extended backwards to a point

where the fleshy tissue begins, I first get the form and breadth of the opening from that point as far down as the little pendent nipple-like processes, by using a lamina of wax, not softened, attached obliquely to the end of a stick, paring the edges with a knife until the wax can be passed backwards and forwards through the fissure, and is seen to correspond in shape. This lamina of wax, thus brought to the required shape, I afterwards extend downwards by the addition of another and broader piece, which reaches as low as the union of the slender palatine muscles with the base of the tongue and the pharyngeus. The pattern thus obtained represents the flat, central portion, or *velum-proper*, but to which afterwards are added certain lateral appendages, covering both the anterior and posterior surfaces of the fissure, and considerably increasing its size. To the edges of this flat pattern are added two wings of thin wax, extending from the top about one inch downwards, and projecting obliquely forwards, and so bent and shaped as to cover the anterior surfaces of the fleshy sides of the fissure. These wings are indicated by the letters *w w*, in figures 2, 3, and 4, representing the rubber velum. The lower margin of the wax pattern very nearly touches the muscular surface of the pharynx, and its rounded corners enter the narrow cavities made by the junction of the long palatine muscles with the pharyngeus, by which I ascertain the whole length required for the velum-proper, and also its greatest breadth at its lower end. I now proceed with a wire probe, bent at right angles half an inch from the point, and which is guarded with a pellet of wax, to sound the depth and shape of the cavity behind the columns or edges of the fissure for some distance upwards. Lastly, I take a small stick of soft wood, with a handle shaped on one end, and a flattened bulb-shaped head, carved obliquely, on the other end. This bulb is to be covered with softened wax or warm gutta percha, and then by passing it through the fissure, and drawing it forwards and upwards, I am able to get an impression of the shape and size of the cavity above, and which is hidden from view by the projecting edges of the fissure. The head of the stick must have a broad, deep notch cut in its upper margin, so as to clear or admit the septum when taking the impression. By this last process we gain a knowledge of the shape of parts not visible to the eye, and where it is of great importance to have the artificial velum well fitted. By the aid of this impression I proceed to attach to each side of the wax model, and behind the wings, a longer and thicker lamina of wax, projecting obliquely backwards, so that when placed in the mouth it will cover the posterior surface of the fleshy edges of the fissure, and also prolonged upwards half an inch or more beyond the upper end of the velum-proper, so as to lie upon the projecting bony shelf. This pos-

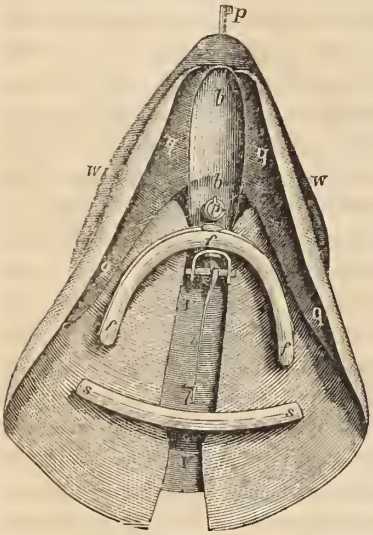
terior appendage is indicated by the letters *q q* in the drawings, and it will be seen that by the two on each side a groove (*c c*, Fig. v.) is formed along the edge of the velum, adapted to receive the edges of the fissure. This wax model then, with its lateral wings, and also the velum to be made from it, comes to be of a size very much larger

Fig. 1. Gold Attachments.—View considerably enlarged.



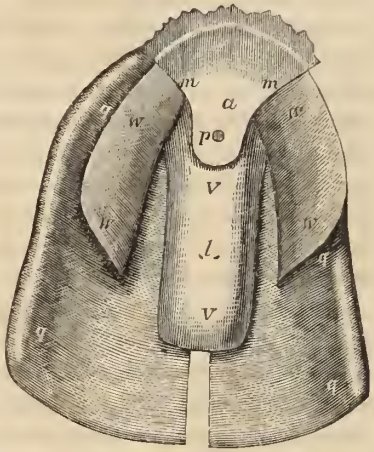

*A* and *B*, portions from posterior margin of roof-plate ; *p*, toothed pin or pivot ; *s w*, slotted tube or swivel ; *r*, chonchoidal spring, with hooked tail-piece *t*.

Fig. 2. Posterior view of Rubber Velum, for case partially closed by Surgical Operation.




*W W*, anterior wings ; *q q*, posterior do. ; *f f f*, upper bow or spring ; *s s*, lower do. ; other letters same as in Fig. 1.

Fig. 3. Anterior view of Velum for Simple Fissure of Soft Palate.

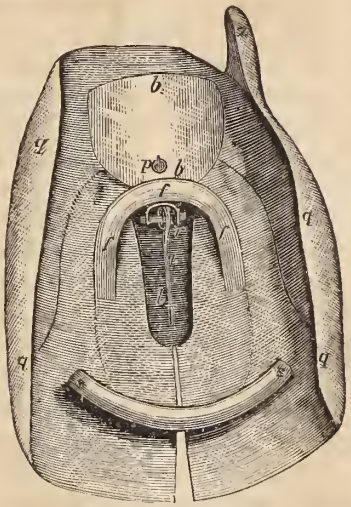



*W W*, wings covering anterior surface ; *q q*, parts of velum lying behind the fissure ; *V V*, valve covering the central opening ; *m m* and *p* are the same as in Fig. 1.

than the mere width and length of the gap which it is designed to close. Many of those I have made, when held in the hand and examined, appeared truly formidable from their great size, but when

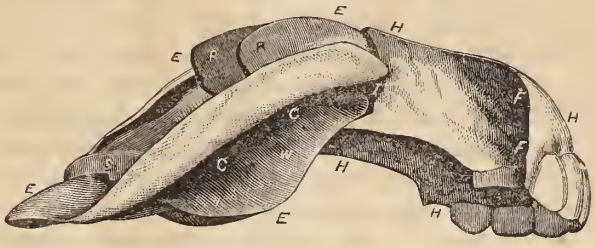
looked at in the mouth, appeared small enough; in fact, I never yet had to alter my models to make a velum smaller, but have often had to enlarge them. From this it will also be understood that an artificial velum must be something more than a mere curtain suspended in the plane of the fissure, and just touching its fleshy edges when at rest. Such an appliance could effect no improvement in the speech,

FIG. 4. POSTERIOR VIEW OF VELUM MADE FOR HARE-LIP SUBJECT.




Same letters refer to similar parts as in Figs. 2 and 3.

FIG. 5. SIDE VIEW OF VELUM JOINED TO A HARD RUBBER ROOF-PLATE.




*E E E E*, Velum; *H H H H*, the hard rubber roof-plate; *C C*, the groove at side of velum to receive the edges of fissure; *R R*, rubber processes rising vertically each side of the vomer; *s*, lower rubber bow or spring.

and would be liable to very frequent displacement by coughing, sneezing, or even the ordinary act of swallowing. But if the velum is made as large as the surrounding parts will possibly admit, it is then acted upon with force by the muscles in contact with it, and, what is

also of great importance, it is, in great part, self-supporting, and even aids to bear the weight of the solid roof to which it is attached; so that in fact the only real necessity for an artificial roof is to fill up the gap in the bones, if there is one, and also to keep the velum from being carried backwards in swallowing.

[To be continued.]

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## MECHANICAL DENTISTRY.

The term "Mechanical Dentist," as used by our profession and the public, does not convey to the mind the true idea; neither is it calculated to impress the public with the importance of his vocation. The mechanical dentist, in the estimation of the public, holds a position and reputation in common with mechanics of all grades and callings. There would be little, if any, ground for complaint, provided the intelligent and virtuous mechanic occupied that position in the public estimation to which his usefulness and importance entitle him. The absurd and ruinous system of education which aims to undervalue any useful labor, however humble, has done much to render all manual labor in this country degrading, unless connected in some manner, however remote, with some one of the professions. It then becomes to a certain extent reputable, however laborious, or however deficient the individual may be, by nature or education, to engage in its requirements.

Every pursuit, trade, or occupation in life, is entitled to be regarded honorable, just in proportion as it administers to the legitimate wants of man, or contributes to his real happiness and well-being.

If this position be a true one, then there is no one vocation known that secures to the afflicted greater benefits than the various productions from the hands of an intelligent, educated, and skilful dentist. Having a thorough knowledge of the various sciences, he is able to select such substances as have power to resist the solvents of the mouth, and, by his skill in mechanics, is able to construct appliances subserving all the purposes of the original natural organs. It is impossible to conceive of greater benefits conferred upon a fellow-being than to restore to him, when lost by disease or accident, those organs which perform such important functions, and upon which his health, and consequent happiness and usefulness, so much depend.

The artist who paints a portrait, in his happiest efforts, is at best a copyist. If he faithfully transfers the original to the canvas, with all of his or her deformities, the world applauds; and the artist has

the self-satisfaction of having succeeded. So with the sculptor, who, with mallet and chisel, carves from the rude, unseemly block, the delicate outlines of the human face, with such unerring precision, that it seems a thing of life : this is imitation, and only calls into action a fraction of the capacity of the human mind. So in the construction of the steam-engine : the mechanic learns by degrees to bring together the various complications and combinations of screw, lever, and wedge ; these, in various combinations, comprise his stock of natural resources, out of which to construct the locomotive, that, on the iron track, carries, with the velocity of the wind, its load of human freight, or brings from other climes their fresh products, which administer to our comforts and necessities. The printing-press, which sends out its thousands of copies into every town and hamlet in the land, has commanded, and ever will command, the admiration of man, so long as it shall administer to his intellectual and moral wants. The telegraph, and all other purely mechanical productions which contribute to our wants, necessities, and luxuries, are combinations of mechanical contrivances, the results of the ingenuity of man.

The foregoing, and other mechanical productions, however admirably they may answer the purposes for which they were designed, require, in their execution and performance, but a limited exercise of the powers inherent in man ; and this is equally true in regard to any and all purely mechanical pursuits ; and hence the term "Mechanical Dentist" does not convey the true sense and meaning of his high calling.

Every pursuit in life which has more to do with science, than art or mechanics, is fairly entitled to be regarded as belonging to the former. The educated dentist, in the fulfilment of his high calling, is most successful when following in the track of established scientific truth. The construction, adaptation, expression, and utility of artificial dentures, depend very much more upon science than art or mechanics. Scientific truths only will enable us to discharge our whole duty. These lie in our pathway ; and he who applies himself, with a desire to become acquainted with these truths, will, in their employment, find, not only the means of overcoming all ordinary difficulties, but will be enabled to secure to those requiring his aid the full benefits of them. The impression in as well as out of the profession has been, that the insertion of artifical teeth was simply a mechanical effort ; that any good watchmaker, machinist, or others of less exalted pursuits, could engage in it profitably and satisfactorily to themselves and their customers. This error, having gained strength by the course pursued by many of our older practi-

tioners who have ignored its practice, as well as those practising it, has done much to degrade the profession, by inviting to its ranks uneducated pretenders, whose mechanical efforts, bad as they often are, excel those of our so-called first dentists, simply because the latter have only educated themselves in one branch of our noble profession, and are just as much quacks, when they attempt the insertion of artificial teeth, as the others when they attempt to fill them. Many young men, just entering the profession, emulate the example of those who make a specialty of operating, and fall into the common error of supposing that it requires more skill to fill teeth than to insert artificial ones. Our journals and conventions all lend their influence to strengthen this error. It is high time the profession and the public were disabused of so great a mistake. While we are frank to acknowledge that operative dentistry requires skill, experience, sound judgment, and delicate manipulation, to insure success, yet we do know that a very much higher order of attainment is required for the selection of teeth and the construction of artificial dentures, artificial palates, &c., and that there are many more failures in the mechanical than the operative branches of our profession. In filling teeth, the operator has every opportunity of determining whether the tooth has sufficient substance to justify an attempt at operating upon it. This often requires more discriminating judgment than the operation itself; and when this is rightly determined, the manipulations thereafter are comparatively easy and certain. Enough of the substance of the tooth remains to give the operator a tolerable idea of its original form; and, with the adhesive foils now used, a permanent stopping is made with comparative ease and certainty. The treatment of ulcerated and badly diseased teeth and gums has been reduced to such system, as to render success reasonably certain. But when a patient applies for an artificial denture, a mere wreck of the original is presented—not a tooth is left to tell the tale, whether beauty, in all its symmetry and grace, once had its abiding-place within, or irregularity and distortion rioted in unseemly disorder there. The nose and chin seem conscious of the horrid chasm between them, from whence inarticulate and unearthly sounds do come, in mortifying contrast with the sweet, melodious, and distinct articulation so peculiar to its original self, and are endeavoring to close the "gap" by coming together, like old friends under mutual affliction. To restore this wreck of departed beauty to its original freshness, to obliterate all evidence of age, disease, or neglect, is the true and noble mission of the dentist. This can only be accomplished by a thorough knowledge of the science of life, and the modifying influences of temperaments, habits,

and hereditary traits, transmissions, and peculiarities, in the absence of all other evidence, by reference to portraits or family resemblances, or otherwise.

The dentist has to fall back upon his knowledge of anatomy and physiology to enable him to restore the picture. He must have a creative mind; he must draw from the storehouse of true knowledge; he must know what expression, what conformation, what effect, is required in each particular case that is presented, each differing so widely in health that we recognize individuals on slight acquaintance, by their individual peculiarities. Beauty, ever retiring and modest, having receded from the surface where its charms were once reflected, is now with broken smiles calling to her aid the magic hand of science and art, to lead it gently back, blooming, as when fresh from the hands of its Maker. The study of phrenology and physiognomy, as well as anatomy and physiology, is required. Every source of knowledge which will aid us in the development of a higher capacity, or augmented perception and increased usefulness, should be employed to render us competent to discharge our high duties.

If, by mistake or ignorance, we select teeth that are in form, color, expression, or general arrangement, defective, our productions, however satisfactory to our patients, are nevertheless failures, and exhibit to the world but too plainly a total lack of fitness for the occupation in which we are engaged; and cannot fail to bring a blush upon the cheeks of the true artist, whose perception of harmony detects the frightful incongruities.

The adaptation of a plate of any kind to the mouth, so as to answer the purpose of mastication, is a thing of very easy accomplishment. The mounting of a given number of teeth upon it, any watchmaker or tinsmith, with grindstone and soldering irons, could do; and in many cases their mechanical efforts would compare favorably with those who have "*dental surgeon*" engraved on massive *door-plates*, and show-windows filled with teeth most foul and unnatural. The difficulties experienced in being able to select teeth adapted to all ages and conditions, I am well aware, is an obstacle to perfect and satisfactory results.

The time was when we were compelled to use single plain teeth. Very little skill could be exercised in their arrangement. It was then thought necessary to set the teeth out, so as to restore the sunken parts as much as possible, artificial teeth being sought for appearance, rather than utility, at that time. Since the introduction of other kinds of teeth, and especially since the improvement introduced by Dr. John Allen, the manner of constructing artificial

dentures has become a science requiring and commanding the best talent in our profession. These improvements have already redeemed mechanical dentistry from a position absolutely degrading to a man of genius, and will ever entitle the name of John Allen to be regarded among the great inventors of this age. The profession, and the public at large, are under more obligation to him than any other man, living or dead, for improvements in this important department of science and art. Among the improvements introduced by him, was the arrangement of the teeth upon the plate with reference entirely to the expression desired, and their position so as to prevent displacement in the act of mastication, and not for the restoration of the sunken portion of the face, those parts being restored by building out upon the plate, independent of the arrangement of the teeth, till the desired contour was obtained.

For several years, Allen's continuous gum-work on platinum was the only system known, in which all the advantages of a good denture could be combined. The introduction of various other substances soon followed, each aiming to embrace these improvements, and each having claimed to possess advantages that the others did not. We shall leave those to advocate the claims of their several systems, knowing, as we do, that their modesty will not, in all probability, prevent them from doing so; and I trust this Convention will not regard it impertinent in them, or unprofitable to itself.

The two principal systems which, in my judgment, possess the greatest merits, and which are being now most employed by our best practitioners in all parts of the country, are the Vulcanite Base, and Continuous Gum on Platina. Both of these systems combine in themselves all that is requisite for perfect dentures. Both for a time were victimized upon the altars of cupidity and ignorance; and but for a few who have abiding faith in great principles, these systems would never have been developed. Both of these systems possess advantages over every other heretofore known, inasmuch as we can place the teeth on the ridge, so as to secure the greatest utility in mastication, which is of the *first* importance. And, *secondly*, the restoration of the sunken portions of the face can be accomplished by building out upon the plate, without materially adding to the weight of the denture. *Thirdly*, by either system the denture is free from the objections experienced in all gold and silver work, which always becomes more or less offensive after being worn in the mouth for any considerable time. And, *lastly*, the work is stronger in a continuous form than when divided up, as is the case with teeth on gold or silver. While we have great confidence in

both of these systems, and believe both will be employed ultimately to the exclusion of all other substances, for the simple reason that they are better adapted to meet the requirements of our advanced state, yet there are difficulties and objections which exist, and which should be made known, in order that those employing either in their practice may understand, and so manipulate the work, as to develop as much good and as little evil as the nature of the case will allow.

The objections urged against Continuous Gum-work by many who have used it, are, the difficulties experienced in making uniform work. *Secondly*, it is too expensive for people in moderate circumstances. *Thirdly*, its weight in many cases is objected to. *Fourthly*, it is liable to become broken by falling, and its weight renders it more liable to accident from this cause than other styles of work. And, *Fifthly*, when broken, the difficulty often attending repairing. It is a well-known fact, that all porcelain, when subjected to a high degree of heat after being once vitrified, or more properly, semi-vitrified, changes from the true porcelain to the glass texture ; the fracture becomes shorter, less tenacious, and weaker every time it is heated to that point. This is a positive condition that cannot be overcome with any of the silicious compounds now in use for continuous gum-work. And, lastly, the metallic ring of double sets of teeth on every occlusion of the jaw.

The foregoing embraces, I believe, all the objections urged against this really beautiful work ; and if neither of these objections could be overcome, they certainly would constitute a bar to its universal adoption.

I propose to give my views of the best manner of overcoming some of these objections.

The difficulties experienced in the furnace work, upon which the beauty of the denture mainly depends, is attributable to the fact that many have supposed that it would be a much easier system of putting up work, and requiring less skill and experience than gold or silver ; many omitted to acquire the knowledge requisite for success. Parties travelled through the country giving instructions, who had little experience and less judgment. "The blind led the blind," and they nearly all failed in their undertaking, and subsequently abandoned the work as being worthless ; whereas, if they had taken proper instructions, and mastered it in the beginning, as some few did, the results would have been very different. The objection as to the expense of this work is undoubtedly valid. To make continuous gum-work as it should be, is too expensive for the masses ; and can never be generally employed by them. Its weight I do not regard as being objectionable ; the adaptation is always

more perfect than with other metal plates; and the additional weight over gold is so little, that I do not believe this difference operates in any manner against the utility of the work. Its liability to become broken by falling is undoubtedly true; and it is equally true, that many valuable and indispensable articles of luxury and utility in daily use, are subject to the same casualty, yet the community do not abstain from their use on this account. The difficulty experienced in repairing the work can never be entirely overcome with the silicious compounds heretofore in use. The body and gum require to be so compounded, that perfect vitrification cannot take place under any reasonable degree of heat. With such materials, we should depend upon the metal for strength, and the body and gum for form and beauty. The last objection to be considered, which has become stereotyped, is among the least of them all, and may be overcome by drilling several small holes between the side teeth, through the body to the plate, before baking. These, after the case is finished and ready for the mouth, may be filled with gold. They very effectually break the ringing sound that would be in some cases objectionable. This work, when properly made, is sufficiently strong, as thousands of cases now in use fully demonstrate; and it is beyond all question the most beautiful work that can be produced from any other materials with which the profession is acquainted.—The Vulcanite Base owes its present great popularity probably to the fact, that it is much easier manipulated; is of more universal application; more certain in results; has more strength; and, from its great elasticity, is less liable to become broken, either in the mouth or from falling; easily repaired, and less expensive; the adaptation more perfect, and consequently easier and more comfortable to the wearer. It has no metallic taste, or electrical action on taking acid in the mouth; and is believed to be durable, tasteless, and inodorous when vulcanized properly. Like continuous gum, it has been crucified by its friends. Many have adopted it without understanding the manner of manipulating so as to obtain the best results; in many cases using inferior gums, which have broken down, and in other respects proved a failure in their hands.

Notwithstanding these obstacles in the way of its introduction, and others which I do not think proper to mention here, many have used only the best gum, with a success never attained with any other material. The Vulcanite Base requires to be carefully manipulated, thoroughly vulcanized, and polished in the most perfect manner. It is adapted to partial as well as full cases, regulating appliances, &c., and for underlaying gold on continuous gum cases

when the absorption has rendered the denture inoperative. The principal objections urged against it are, that its introduction has tended to cheapen dental operations ; the ease with which it is manipulated, and the certainty of superior adaptation, places in the hands of the young and inexperienced the means of successful competition with those who are qualified to manipulate other and more difficult and expensive kinds of work. Whatever force there may be in these objections, to my mind it appears to be the result of the absence of all legal qualifications on the part of those taking upon themselves the responsibility of a professional life, and not a system that naturally lessens the labor of those every way qualified to engage in its practice. If our profession were made up of those only who are every way qualified to engage in its practice, there could be no objection to the introduction of a system that would facilitate its legitimate business, lessen its toils, or reduce its expenses ; while at the same time augmenting its usefulness, and rendering its results more certain and satisfactory. There is no reason why there should be any more difference in the expense to the patient than the difference in the cost of the materials employed ; and this difference would operate in favor of both dentist and patient. In every other department of human activity, those who labor to cheapen the necessaries of life, are truly regarded as benefactors ; and I cannot see that improvements introduced in an honorable profession should be regarded as an exception to this rule. The substitution of this and other materials for the precious metals, is certainly a matter of great importance to mankind ; and the reduction in the consumption of these as noticeable in our profession, is among the many evidences of our progression.

B. W. FRANKLIN.

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## NEW FUSIBLE ALLOYS.

To the Editor of the U. S. Mining Journal :

In availing myself of this opportunity to furnish you with particulars as to the advantages claimed for the Metallic composition, for which a patent has lately been issued to me, it will be necessary to advert briefly to some of the alloys upon which mine is offered as an improvement.

I may premise by stating, that, having instituted a series of experiments, with a view to the production of alloys possessing great

fusibility, in connection with tenacity, malleability, and other qualities required of a metal, as a solder for the more fusible metallic wares in use, and as a material for casting at a low temperature, &c., and having discovered in the metal cadmium, as an ingredient in alloys, properties favorable to the result, I attained the object sought by combining this metal with lead and tin, and with lead, tin, and bismuth, in the proportions as set forth in my specifications. To these, mercury may be added, to modify the result for particular cases, as described.

The advantage of possessing the joint qualities of great fusibility, malleability, strength, &c., in a metal designed for uses as above, is too evident to dwell upon. Much patient experimentation has been conducted towards this end, and the research has been rewarded by the discovery of many valuable alloys.

One of the most useful of this class is the alloy commonly called "fine solder," consisting of one part of lead, and two parts tin. It is perfectly malleable, highly tenacious, and melts, according to Prof. Graham, at the temperature of 360 deg. Fahr., being the most fusible of any of the mixtures of lead and tin. But its melting-point is too high for a solder for the more fusible tin-metals, such as the ordinary pewter and Britannia ware, &c. Another objection is its softness.

The alloys consisting of lead, tin, and bismuth, commonly called "bismuth solders," are harder and more fusible, but they are proportionably brittle. A common formula for very easily melted solder is, 16 parts tin, 8 lead, 4 bismuth. A more fusible mixture, and the most fusible *alloy* hitherto known, is that discovered by Sir Isaac Newton, consisting of 3 parts tin, 5 lead, 8 bismuth. This melts, according to Prof. Graham, at 202 deg. Fahr. No practical improvement has ever been made upon this by any combination of the constituents, although certain combinations possess, according to some experimenters, a lower melting-point by one or two degrees—a difference too slight for appreciation by ordinary tests. Practically, the melting-point is somewhat higher, requiring a temperature of about 210 deg. for perfect liquefaction. In view of its remarkable fusibility, this alloy has received the distinguished name of "Fuside Metal." It is too brittle for ordinary use as a solder, but is much employed for casting, as in making dies for light work, and for taking impressions from medallions, and other objects. Melting below the temperature of boiling water, it may be used upon the fresh plaster-cast, or other moist surface. But it has the disadvantage, that, when used at a heat barely sufficient for fusion, it is not fluid enough to take the sharp outlines, and congeals before it can

flow into the interstices ; while a small additional heat raises its temperature above that at which water boils, whence steam is produced, which spoils the work.

The melting-point of these alloys may, as is well known, be lowered to any extent by the addition of mercury ; but this metal, even in small proportions, renders them so frail and brittle as to be worthless for the ordinary uses. It also causes them to tarnish, and is partly eliminated from the compound, being retained rather as a foreign admixture than as a chemical constituent, whence it occurs that these *amalgams* injure other metals with which they come in contact. So, also, when used for anatomical injections, the mercury permeates and blackens the tissues.

My improvement greatly obviates these defects, and meets more perfectly the requirements of alloys of this class. The composition composed of cadmium, lead, and tin, melts somewhat under 300 deg. Fahr., or sixty or seventy degrees below the melting-point of the "fine solder" above referred to. It is equal to it in malleability and tenacity, is much harder and stronger, and admits of a higher polish. It ranks in fusibility with the more easily melted "bismuth solders," and is believed to be greatly superior to any of them in all the other requisites for this purpose. The advantages, for other purposes, of a metal possessing these qualities, will readily suggest themselves.

The composition consisting of cadmium, lead, and tin, in conjunction with bismuth, melts between 150 and 160 deg. Fahr., being some fifty or sixty degrees below the melting-point of Newton's "Fusible Metal," mentioned above, corresponding very nearly with it in respect to malleability and tenacity, but harder and more adhesive. It is adapted to similar purposes, and the low temperature at which it fuses renders it applicable in many cases where the other would not answer, while it is free from the objections appertaining to the amalgams resorted to in such cases. As a material for anatomical injections, it will be found superior in every respect, it is believed, to the amalgams in use.

This alloy, it will be observed, is much more fusible than any other *alloy* known in the arts, or than any combination of metals whatever, except amalgams. I speak here of the permanent metals, without regard to what possibly may have been produced in the chemist's laboratory by combinations of such unstable metals as potassium and sodium, which, it is evident, would not be permanent in ordinary conditions, much less be of practical application in the arts.

Both of these forms of alloy are susceptible of considerable modi-

fication as to their physical characters, such as hardness, rigidity, pliancy, &c., by varying the proportions of their constituents, as set forth in my specification.

Their melting-point may be lowered, like that of other alloys, by tha addition of mercury ; but what is peculiar, this metal may be employed, to a certain extent, in connection with them, without materially impairing their tenacity ; whereas, if used in like quantity in any analogous alloy not containing cadmium, it would render the compound so frail and brittle as to be worthless. Moreover, cadmium having a strong affinity for mercury, and affording a bond of chemical union between it and the other constituents, a true chemical combination appears to result ; whence the presence of mercury is less objectionable than in the cases before referred to.

From the results of my experiments, I doubt not that cadmium, which has so long been passed over as of little practical utility, is destined to become a very important metal in the arts. It is usually found associated with zinc. If the reports be true that zinc has been found extensively in the western States, it is possible cadmium may be obtained in connection with it in greater abundance than heretofore produced in other localities, and it might be worth the while of our metallurgists to direct their attention to the subject.

Nashville, Tenn., April 28, 1860. B. WOOD, M. D.

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## ALCOHOL.

A convenient method for concentrating alcohol, is that discovered by Sommering, founded upon the property of ox bladders to allow water to pass through and evaporate out of them ; but not to permit alcohol to transpire, or only in a slight degree. Hence, if an ox's bladder is filled with spirits of wine, well tied at the mouth, and suspended in a warm place, the water will continually exhale, and the alcohol will become nearly anhydrous ; for in this way alcohol of 97 or 98 per cent. may be obtained.

According to Sommering, we should take for this purpose the bladder of an ox or a calf, soak it for some time in water, then inflate it and free it from the fat and the attached vessels ; which is to be also done to the other surface by turning it inside out. After it is again inflated and dried, we must smear over the outer side twice, and the inner side four times, with a solution of isinglass, by which its texture is made closer, and the concentration of the alcohol goes on better. A bladder so prepared may serve more than a hundred times.

It must be charged with the spirits to be concentrated, leaving a small space vacant; it is then to be tightly bound at the mouth and suspended in a warm situation, at a temperature of 122 deg. Fabr., over a sand-bath, or in the neighborhood of an oven. The surface of the bladder remains moist with the water as long as the Sp. Gr. of the contained spirits is greater than 0.952; weak spirits loses its water quicker than strong, but in from six to twelve hours the alcohol may be concentrated when a suitable heat is employed. —*Ure's Dic.*

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## CHEMISTRY OF THE HUMAN BODY.

The human body, made up as it is of a great variety of tissues arranged in a harmonious whole, is nevertheless capable of being resolved into a number of *proximate elements,* which form the basis of all the tissues and secretions of the body.

*Sulphur* forms a part of almost all the tissues, and composes a very considerable proportion of some of them.

*Phosphorus* is also very generally distributed through the system, like sulphur in its elemental form; it constitutes an essential part of the albumen and fibrin.

*Chlorine,* too, is very abundant in the animal economy; not, however, in its elemental form.

*Silican,* in the form of silicic acid, or silex, is a constituent of the enamel of the teeth, the hair, the saliva, the urine, the blood, &c.

*Fluorine* was first detected by Berzelius in bones, teeth, and urine.

*Potassium* is found in the blood and all the fluids, as a chloride. Sulphate of potassa, as well as soda, exists in the blood, urine, milk, and sweat.

*Sodium* abounds as a chloride, as a sulphate, and phosphate; soda is found in company with potassa.

*Calcium* is found more largely than any other metal in the body. Its chloride is a constituent of the gastric juice and of the saliva, and its floride of the tissues and fluids, mentioned above under the head of florine.

*Magnesium* is also a component of the human frame, and is very generally distributed, though not in such large proportion as the last-named metal.

*Alumina* is found in the teeth, and was said by Orfila to exist in the bones. Lehman denies its presence in the animal economy.

*Iron* is a constituent of hæmatin, the coloring matter of the blood, of lymph, chyle, muscles, bones, and many other tissues. Its chloride forms a part of the gastric juice.

*Manganese* is contained in the hair, a fact which can be easily demonstrated by fusing the ash of hair with carbonate of soda, when the characteristic green tint of manganate of soda will be observed.

*Copper* is reckoned by Devergie, Orfila, Heller, and others, as a normal constituent of the soft parts of the blood.

*Lead* has also been detected in the body; and at one time Orfila affirmed that *arsenic* was an element of healthy human bone. He has, however, since abandoned that idea."—*Piggott's Dental Chemistry and Metallurgy.*

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## MELTING-POINT OF METALS.

The following is a list of the melting-points of some of the metals, and it is obvious that in an assay of each particular metal, the temperature employed must exceed by a considerable number of degrees its melting-point. The table is therefore very useful.

| | | Fahrenheit. |
|---|---|---|
| Tin | melts at | 420 degrees. |
| Bismuth | " | 497 " |
| Lead | " | 612 " |
| Zinc | " | 773 " |
| Cadmium | " | 442 " |
| Silver | " | 1860 " |
| Copper | " | 1996 " |
| Gold | " | 2016 " |
| Cast-Iron | " | 2786 " |
| Brass | " | 1869 " |

Cobalt and Nickel less fusible than iron. DANIELL.

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[COMMUNICATION.]

MR. EDITOR :—Our attention has been called to two articles in the June number of the *Dental Register of the West*, signed J. T. Toland, in which the writer throws an indefinite quantity of dust in the eyes of his readers on the subject of the validity of the Goodyear patents, and endeavors to make them believe that our settlements with Messrs. Roberts and Dieffenbach were attained through means of *bribery* on our part. The reasonings resorted to by Mr. Toland are so specious, and the selfish object he has in view in assailing our rights is so obvious, that we feel half inclined to pass him by without notice. The rule, however, that silence gives consent, admits of so wide interpretation in the minds of some persons, that we propose to review briefly some of his statements and insinuations. The low and vulgar abuse which he heaps upon our agent, Dr. Franklin, in the first article, we shall treat with the contempt it

deserves. Should Dr. F. think it worth his while to reply to so scurrilous an attack, we would advise him to choose other weapons of defence than such as those with which he has been assailed. In the use of vituperative epithets and base insinuation, Mr. Toland shows himself to be too well skilled to give a gentlemanly foe a fair and equal chance. As to the relative position occupied by the American Hard Rubber Co. in the eyes of the profession, before and since the accession of Dr. Franklin to the Agency, we have yet to learn from any reliable source that it has in any manner changed for the worse. However this may be, on *our* shoulders belongs the responsiblity of all the action taken by the Agency in regard to sales of patents, and commencement of suits for the protection of our rights. What those rights are we have informed the profession, in the exact language in which they were granted to Mr. Goodyear. The meaning of that language no man can mistake ; there may be, and there undoubtedly are, honest differences of opinion in regard to the utility and justice of such grants. These we shall not stop to consider. The fact is patent to all that the government of the United States regards the product of a man's brain and hands equally his property, and has thrown its protecting arm around both alike. How it can be that any one should duly respect the one, while he freely appropriates the other, without saying as much as " by your leave," is a question in morals we leave for the parties most interested to solve. In making this remark, we would by no means wish to be understood that we regard all who have used Vulcanite in its various forms, without a license, as dishonest persons. On the contrary, we doubt not that in the early stages of the business, a large proportion of those who used what was termed "Coralite" did so from a conviction that we did not even *claim* it to be covered by the Goodyear patents. The same may have been the case with some who used the " Amber Base ;" and a *few* confiding souls might even be found, who really believed that "Wheat's Compound" and " Brigham's Superior Gum" were made *without the use of sulphur.*

But whilst this may have been the case, it must be acknowledged that there has been, and still is, a class of men in the dental profession, who, in regard to the compounds covered by the Goodyear patents, have not scrupled to resort to measures the most base, and deceptions the most glaring, for the purpose of putting a few dollars in their own pockets, regardless alike of the rights of their neighbors and the liabilities imposed upon those they were deceiving. And we are obliged to add, that there are too many, whose interest in this matter extends only to *their own practice,* who have been and still are too ready to clutch at every tissue of falsehood or misrep-

resentation put forth by these designing men, as a reason for their want of honest action in regard to our rights. Could any large proportion of the dentists who are now using Vulcanite, without a license, be induced to appropriate *any other* property of the American Hard Rubber Co., by misrepresentation so palpable, and reasonings so unsound, as those which influenced them in the unauthorized use of Vulcanite? Is there anything in the article of Mr. Toland, above referred to, which should weigh a feather against the assertion we have so often made, that the Goodyear patents cover *all the Vulcanizable compounds* which have yet been offered to the public for dental purposes? This assertion Mr. Toland is careful not to deny, but labors hard to befog the minds of his readers by *insinuations* and *surmises*, and questionings on points wholly irrelevant to the matter at issue. Mr. Toland knows very well that we claim "no patent of a principle," under the Goodyear rights. His claim is, for mixing certain proportions of gum and sulphur, and subjecting the same to a certain degree of heat, as fully described in his specification, and also for the *product* of such combination and process. Does Mr. T. know *of any one* of the compounds now in use by the profession which does not come within the description of that specification? If so let him name it, and there will be a distinct point at issue between us. Or can he name any one of the "twenty-five patents issued for India-rubber in the United States, and as many more in England," which covers the ground of the Nelson-Goodyear patent? If so, let him inform us which it is, and there will then be another *point* at which we can aim our remarks. In short, whatever exceptions Mr. Toland may make to the Goodyear patents, or to our rights under them, let him state them as fairly, fully, and unmistakably as we have stated our claims, and those who are putting large profits into his pockets on the sale of gum and heaters, will understand exactly the responsibilities they are incurring in the *use of* such materials and apparatus. As the matter *now* stands, when the settling-time shall come—*as come it must*—to all infringers upon our rights, he may turn to his victims with the language he has put into *our* mouth, upon *his* lips, "*Shake not thy gory locks at me, thou canst not say I did it.*" The same ambiguity which characterizes Mr. Toland's remarks about our patents, attaches to what he has to say in regard to the settlement of the cases of Roberts and Dieffenbach. There is any amount of surmising and insinuation, but not one iota of proof, that the clear and explicit declarations we have made in regard to those cases are untrue in any particular. It would be folly for us to attempt to answer all the inquiries made by him, or give reasons for all the circumstances and events which he

intimates have occurred since these settlements: as, for instance, why "Mr. Roberts told him in July that he would pursue the case to the last point of the law, and then backed out;" why "he did not spend a few hundreds more in defending his position;" why "he did not answer Mr. Toland's letter, as he promised, when he had leisure;" why "he appears more happy and prosperous since the settlement than he did before;" why "Dr. Dieffenbach, and his agent, Chas. Wehl, Esq., *have melted as snow beneath the sun;*" why "Dr. Dieffenbach should choose to go to England without consulting his attorney;" and why "he staid not upon the order of his going, but went at once." On all these points, so far as we are concerned, Mr. Toland and his anxious friends must remain in a state of blissful ignorance. In regard to the course taken by us in the case of Roberts and Dieffenbach, which interests the profession in so far as it indicates our own confidence or want of confidence in our rights, we would repeat what we have before stated, that we neither sought for nor *desired* a settlement with either of them, until after a full and fair trial of our case on its merits should have been had.

The notice that Mr. Roberts would no longer contest his case was voluntarily served on us by his attorney, after which there remained nothing further to be done but to appoint a commissioner to decide upon the amount of damages to be paid, or for the parties to agree what that damage should be. The latter course having been adopted before the day set down for trial, it was perfectly natural for Mr. Roberts' counsel to give notice to the court that the suit would be no longer contested, and he would consent to a verdict. This was accordingly done. Mr. Roberts' attorney paid over the amount of damages agreed upon, together with all the cost, and the case was dropped. That Mr. Roberts acted the part of a wise man, in taking the course he did, no one acquainted with the circumstances can for a moment doubt; and such we predict will ere long be the emphatic verdict of the man who is now villifying him for the course he then pursued. Our arrangement with Mr. Dieffenbach took place just as we were about commencing a suit against him. Having become aware of the fact, he applied to us for a settlement. This we granted, on condition that he would fully acknowledge our rights: sell his compound only to our licensees, and purchase of us an office-right, at our regular price, for his office practice in New York. To all these terms he acceded, and in addition we agreed to allow him the ordinary agents' commission on all the licenses he might sell for us. There is no inconsistency in the statement of Mr. Dieffenbach, as charged by Mr. Toland. The sale of his "Amber Base" in its raw state (which was meant by Mr.

Dieffenbach) is no infringement of the Goodyear patents ; it is only the vulcanizing of the compound, and selling it after it is vulcanized, which constitutes infringement. And this we believe no man understands better than Mr. Toland. A few words in regard to the legal measures we have taken to secure our rights, and we have done. These measures, all must acknowledge, we have not resorted to until all other means have failed, and we have exercised the greatest forbearance towards those who might be supposed in any manner to be the victims of others. We have thus far failed of getting any one to carry through a contest with us in our courts. We rejoice, however, in the assurance we have from Mr. J. T. Toland, against whom we have commenced a suit in the United States courts for the district of Cincinnati, that *he* will stand fire to the last, and that he can neither be *bought* nor *frightened.* If such should prove to be the fact, we can assure him that he will have among his circle of friends none who will be more highly gratified than the

AMERICAN HARD RUBBER CO.

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## AN IMPORTANT IMPROVEMENT IN DENTAL MECHANICS.

*A new mode of obtaining a metallic model from the plaster impression of the mouth.*

AFTER having procured a correct plaster impression, the outer alveolar edge, and the posterior portion of this impression should be cut down as far and in such manner as the dental base is desired to extend, being particular to allow for muscular and ligamentous attachments ; at the same time (*if considered requisite*) cut an atmospheric chamber in the palatal arched portion of the impression, then saturate with wax or varnish all such parts of the plaster, except that part of the impression it is desired to transfer to the metal, which must be even or uniformly covered with fine plumbago, or any of the metallic bronzes.

The process of obtaining the model is simply this : A water-tight wooden, earthen, or other vessel (*non-metallic*), say a common water-pail, is divided into two compartments so as to allow no communication of liquids from one apartment to the other. Let both apartments be nearly filled with water, and to each quart of water in one of them add a drachm of *sulphuric acid* (*oil of vitriol*). Into the water of the other apartment put as much *sulphate of copper* (*blue vitriol*) as it will hold in solution, *i. e.*, a quarter of a pound to each quart of water.

Having your vessel and liquids now ready ; take a piece of stout copper wire and bend it for a conductor, so that it may hang over the partition, and extend down into the liquids on either side. To one end of this conductor attach a plate of zinc to be inserted in the acid, and to the other end affix the plaster impression, so that the copper wire will come in immediate contact with

some portion of the surface coated by the plumbago, bronze, or whatever metallic surface may have been rubbed over the impression. By hanging this conductor across the partition, with the end to which the zinc is attached immersed in the acid, the face of the impression directly towards the zinc, you will have a most capital galvanic battery, the action of which will separate and precipitate the copper contained in the solution, and cause it to form a beautiful copper surface on the face of the impression. In the course of ten or twelve hours this coating of copper will be of sufficient thickness to form the face of a perfect model in pure metallic copper, and an exact *fac simile* of the mouth from the impression, forming a disk of copper in which can be poured or run fusible metal, brittania, or any of the metals used as models or dies for dental purposes, giving it the requisite thickness or shape for swaging.

This is a most excellent mode for obtaining a correct and most perfect model of such impressions as are very uneven, with undercut or projecting alveolar ridge, where it is almost if not quite impossible to obtain a correct metallic model by the ordinary process.

BURRAS *

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THOSE having little experience in the Vulcanite Base, we take great pleasure in referring to the following list of licensees of the American Hard Rubber Co.

Many other members of the profession in all parts of the country have patronized our Agency, (No. 640 Broadway,) by sending their cases to us to be vulcanized, etc., numbering in all over 1400 sets of teeth, within the past year, which have been put up in our laboratory in this city. We question if any other style of work has attained to so great a popularity, in this or any other country.

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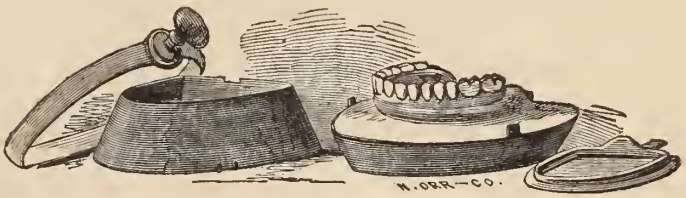
# EDITORIAL.

The National Dental Association, at its meeting at Washington, July 31st, 1860, have elected as President, Dr. Atkinson, of Cleveland; Vice-Presidents, Dr. Gibbs, of Washington, and Dr. Clark, of Georgia; Recording Secretary, Dr. Taft, of Ohio; Correspnding Secretary, Dr. Rogers, of Kentucky; Treasurer, Dr. Dillingham, of Pennsylvania.

## DIRECTIONS FOR PUTTING UP THE VULCANITE BASE.

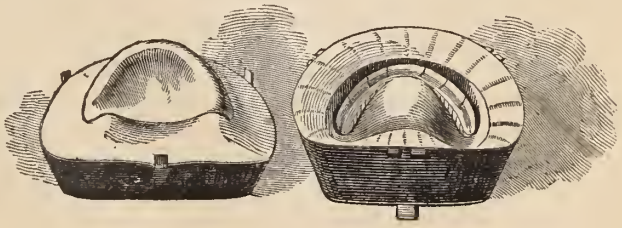
After a thin plaster model is obtained from a *perfect impression*, adapt a gutta percha or wax plate to the model, the size, thickness and form required; with this get the bite or articulation of the mouth, the same as with a metal plate; arrange the teeth to the wax, the same as for other styles of work, being careful to bend the pins in the teeth, to form hooks either downward or sideways, or both, as the teeth may require. After the teeth are arranged, and the proper expression given, build wax around the teeth, as desired. When the vulcanite is substituted, this process duplicates the wax form in the most perfect manner. The wax

should be smoothed with a warm spatula, and a little wax melted around the edge of the plate, to fasten it to the model, to prevent any plaster from running under the plate when the upper half of the flask is filled. Some little pains and taste, at this stage of the work, will save much time in finishing after the work is vulcanized. The model, with the teeth and wax form upon it, is set, teeth up, in the under side of the flask, and filled with fresh mixed plaster, even with the edge, or to a line that will admit of a separation, when the remaining half of the flask is put together and filled. Cut 1, with teeth, represents a case in the lower half of the



Cut 1.

flask, ready for the upper half. We now varnish the plaster with shellac varnish; when dry, oil the varnished surface, then place the upper section in its place, and fill with fresh mixed plaster, being careful to fill every part complete, allowing no air-bubbles in the plaster. It is of the utmost importance that the plaster be worked so as to make a homogeneous and solid mass. The cap or top of the flask may now be placed in position, and the clamp or band screwed around the flask. After the plaster has sufficiently set, warm the flask and contents to about blood heat, or a little above, and gently separate; the teeth will be found firmly held in the upper section, with the temporary plate and wax attached. Now carefully remove the plate and wax, cleaning away all adhering wax from around the teeth, and from between the pins, as seen in cut 2. We now set the upper half, containing the teeth, near the fire, and warm it gently at first, increasing till quite hot. We now cut the rubber into strips of suitable width and length convenient to fill in and around the pins and teeth, and for the plate, and soften them by placing them on a hot brick, or in any other convenient manner. A tin vessel, with a flat cover, containing boiling water, is the best, as there is no danger with it of overheating the rubber. When it is soft and stickey, we commence



Cut 2.

packing narrow strips around the pins, and in the grooves on the anterior side of the base of the teeth, being careful not to allow any plaster, or other foreign substances, to work into the rubber. Proceed in this manner, adding piece after piece, until the space occupied by the plate and wax is a little more than full.

The part of the flask containing the model should be kept cold. The two parts may now be brought together, and a gentle pressure applied. If any blank places are visible on taking the flask apart, more gum may be added. We now cut a series of grooves, one-eighth of an inch in width and depth, from the gum to the outer edge of the plaster, as seen in cut 2. These grooves permit any surplus gum to escape, when the flask is screwed together. Some are in the habit of working tin foil on to the model, after melting a thin coating of wax over the surface of the model, or by wetting the surface with any mucilagiuous gum, or liquid silex, and carefully rubbing the foil down smooth on to model. After the case is vulcanized, the foil can be dissolved with hydrochloric acid. The foil prevents the plaster from coming in contact with the vulcanite and the under surface of the plate, presenting a much more comely appearance. The flask is now to be put together, the two edges being kept as near parallel as possible, the clamp placed on or around the flask, so as to bring it together as even and uniformly as possible. We now gently screw the flask partly down, and set it in a warm place for a short time, so as to give the gum time to yield under the pressure, as well as to prevent the teeth from being displaced by a too sudden force, starting the screw at short intervals, until the parts come together. As a test for the completion of the vulcanization, twist a little of the gum around the screw outside of the flask; this, in case of any mistake in time, or otherwise, will give the operator a correct idea of the condition of the gum inside, without being under the necessity of opening the flask; if too little done it may be replaced in the heater, and vulcanized over. The flask may be placed under water in the heater; one hour at 315, 320, or 325 degrees, is sufficient time to vulcanize the rubber. The degree of heat required to do good work may vary a little, in consequence of the variation in the thermometers. The best results, however, are when the vulcanite presents the consistency of horn, under the scraping. If too long time is given in vulcanizing, it is more dark in color, and less tenacious. To prevent the gum from working between the joints of the teeth, after the wax is removed, as seen in cut 2, fill the joints with dry plaster, and saturate with liquid silex. To finish the work, use coarse files, and scrapers of various shapes and sizes; then fine sand-paper, or emery-cloth, cork wheels and fine ground pumice-stone and water, cotton wheels, or very fine brush wheels, and whiting, or prepared chalk and water. The vulcanite rubber is susceptible of a fine and beautiful polish, and the more perfectly it is finished the less likely it will be to retain minute particles upon its surface. The color of the work may be improved by placing it in a glass vessel under alcohol, and setting it in the sun for a few hours.

The form of partial cases can be changed, after being vulcanized, by covering the surface with sweet oil, and holding it near a fire, or over a spirit-lamp, care being taken not to burn it; when quite hot the vulcanite becomes softened, and very considerable change may be made, and when cold it will retain the shape and position given to it. These changes can be made any number of times without impairing its strength or elasticity.

## CHEVALIER'S ILLUSTRATED CATALOGUE.

We have been shown the proof sheet of this splendid forthcoming work, embracing all the important improvements in instruments, chairs, operating cases, and apparatus generally, manufactured by this oldest established house. In ad-

dition to the cuts, which are executed in the highest perfection of the art, descriptions of the manner of using the more difficult kind of instruments accompany each, making it a work, not only highly useful for every dentist to select and order from, but it instructs him in their use at the same time. This establishment, the largest of its kind in this country, has been long and favorably known to the profession, and needs no recommendation from us. We were led to say this much, however, from the real beauty and utility of this novel style of advertisiug. This house was never more prosperous than now : uniting the expericnce of the senior with the energy of the younger branches of the firm, they combine the elements of success, and richly deserve the confidence they enjoy.

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We would call the special attention of our readers to the able and interesting article on Palatine Fissures, by Dr. C. W. Stearns, of this city, in this number. This subject has been but imperfectly understood by our best surgeons and dentists ; indeed, there have been but few persons in this country who have been able to construct Artificial Palates so as to materially improve the voice. The Drs. Tucker, of Boston, have had some success in this important branch of mechanical dentistry. M. Delabar was probably more successful than any other operator that used metallic substances exclusively, in the construction of these difficult pieces of mechanism. Since the introduction of Vulcanized rubber, Dr. Stearns has been more successful in the constructing and adapting of the various fixtures and attachments ; so much so as to make a flexible velum with the uvulu, etc., performing all the functions of the natural organs. We uuderstand that Dr. Stearns will hold himself in readiness to be consulted, and to give directions, and superintend the getting up of artificial palates for any members of our profession that may require his aid. This is certainly very condescending in a man like Dr. Stearns, who has devoted half a lifetime to the perfection and development of this specialty. We doubt not the profession, or that portiou of it who have given the subject much attention, will be glad to avail themselves of the opportunity thus presented, to perfect themselves in this important department of science. All persons desiring information can address Dr. C. W. Stearns, No. 95 Cliff St., N. Y., or direct to care of "Vulcanite," No. 640 Broadway.

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## THE AMERICAN CONVENTION.

The meeting of the American Convention at Saratoga Springs on the 7th of August, bids fair to be largely attended, and of more than common interest. From correspondence and personal interviews with a large number of dentists in New York and the Eastern States, we are led to believe that the Saratoga meeting will be one of uncommon interest to the profession. There is no place in the United States possessing more attractions, and offering greater facilities for recuperation. The season thus far has been delightfully cool, and the consequence is that Saratoga has not, and probably will not, be crowded as in hotter seasons. We would say to every dentist, If you can possibly leave your business, it is your duty to do so. First, it is a duty you owe to your health,— a week's relaxation at Saratoga will enable you to return with renewed vigor to the daily routine of office life ; it is a duty you owe to the profession to which you belong, to aid in all proper efforts to elevate the standard of that profession with which you are identified, and upon which your success in life so much depends. We say again, it is the duty as well as interest of every dentist to lend his countenance and support to these annual gatherings.

## THE NATIONAL CONVENTION.

The friends of a National Association of Dentists, "composed of delegates" from State and local societies and Dental Colleges, claim that the American Convention, always accessible to the entire profession, is incompetent to thorough "scientific investigation." By what kind of metaphysical metamorphosis they expect to change the character of those making up the profession in the United States, is not a little difficult to divine. "The elaboration and development of the science of our profession" can only be accomplished by a "National Society" composed of delegates.

If this be true, then it is manifest that we have a mine of hidden talent in our profession, which the annual gathering at the American Convention has never been able to bring to the surface. An El Dorado of intellectual wealth has been discovered, which the ruminators composing the "nucleus" of this contemplated National Society can only "bring up."

It seems to us that a committee on "scientific investigation," composed of "six" members selected from the American Convention, at any of its annual gatherings, could have accomplished all that a National Society composed of delegates could do, either in gross or through a committee of its members. We shall look with profound interest for the coming light of this meteoric body. We trust the high hopes of the friends of this movement will be realized—that July 31st will be ever memorable in history—that the anniversary of the birth of this association will be commemorated with "joyous song"—and that our "tribe" may slake its "thirst" for knowledge in the forth-gushing stream.

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A limited number of advertisements will be inserted in the Vulcanite at the following rates:

| | | | |
|---|---|---|---|
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## BOOKS RECEIVED.

The "Dental Register of the West." Edited by J. Taft and Geo. Watt. J. T. Toland, publisher and proprietor, Cincinnati, O. Monthly, at $3 00 per annum in advance.

The "Dental Cosmos." Edited by J. D. White, J. H. McQuillen, and Geo. S. Ziegler. Jones & White, publishers, Philadelphia, Pa. Monthly, $2 50 per annum in advance.

"The Southern Dental Examiner." Edited by J. P. H. Brown and Geo. J. Fouke. Brown & Hape, publishers and proprietors, Atlanta, Ga. Monthly, $1 00 per annum in advance.

"Cincinnati Dental Lamp." Edited by J. M. Brown, Cincinnati, O. Quarterly, 20 cts. per annum in advance.

The "American Dental Review." Published by A. M. Leslie, St. Louis, Mo. Quarterly, $1 00 per annum in advance.

The "Dental Enterprise." Edited by H. Snowden, Baltimore, Md. Monthly, 50 cts. per annum in advance.

The "New York Dental Journal." Edited by Frank H. Norton. Quarterly, $2 00 per annum in advance.

"Revue Odontotechnique." Edited by C. S. Putnam, Paris, France.

"L'Art Dentaire." Edited by A. Preterre, Paris, France. Monthly, $5 00 per annum.

We would advise every dentist in the United States to subscribe for one or more of the above journals. Parties sending to us for dental goods, can enclose the price of subscription, and we will have either of the aboved-named journals forwarded as per order. Try them—it would be a paying investment; better than money at interest. Dividends declared quarterly and monthly are paying institutions. *We repeat,* try them and see.

# THE VULCANITE.

Vol. I. NOVEMBER, 1860. No. 3.

## PALATINE FISSURE; ITS REMEDY BY ARTIFICIAL MEANS CONSIDERED.

BY CHAS. W. STEARNS, M. D.

(*Continued from page* 48.)

If the wax model, as thus completed, is attached obliquely to the end of a slender stick, like a penholder, or held in a port-crayon, it may be tried in the mouth, by passing it far down into the pharynx, so as to get its upper end behind the edges of the fissure, and then raising it, and at the same time drawing it gently forwards, when the operator may see how nearly he has brought it to the required form. If it is pretty well adapted, the model will settle into its place, and show some disposition to stay there. This trial should be made slowly and gently, for the wax, being inelastic, is not suited to yield to the spasmodic contraction of the muscular parts, and therefore patients should be cautioned to control themselves for a few moments during the process.

From this wax model, the making of a mold on which to vulcanize the elastic rubber velum, is next to be proceeded with. This mold consists of several detached pieces, which, when laid together, inclose a hollow space of the same form as the rubber velum to be vulcanized in it. For making this mold, either plaster-paris, hard wood, or type-metal may be used. A plaster mold will serve for only once, but from hard wood or type-metal molds an indefinite number of vela may be vulcanized. It would be difficult, by mere verbal description, to specify both the number and exact shape of the several pieces of which the mold consists; nor, perhaps, is this necessary, as any one acquainted with the process of "piece-molding," as practised by sculptors and modellers, or that of "false coring," used by bronze-figure casters, can contrive the proper arrangement of the several pieces after understanding the anatomy (if I may be allowed the word) of the several parts of the artificial velum.

Though I have carved most of my molds from blocks of close-grained mahogany, those who will hereafter undertake these cases had better use type-metal or some similar compound; for wood can only be used for vulcanizing with a "dry heat," and most, if not all, of the

rubber compounds now made by the manufacturers, require to be vulcanized by a "steam heat," and will not vulcanize in the old way, by a dry heat. The molds consist chiefly of three pieces, if made of wood, or more conveniently of four pieces, if made of metal, viz: one large piece for the base, on which the posterior surface of the velum is formed; two lateral or cheek-pieces to form the wings *w w*, *q q*, and the groove *c c*; and a top-piece or cope, as broad as the base, which closes over the other three pieces, and gives form to the anterior surface of the velum. Thus all the pieces of the mold, which placed in their relative position and locked together, will inclose a vacant space of the shape required for the rubber velum to be vulcanized in it.

Having explained thus generally my methods of proceeding, applicable alike to all artificial vela, it now remains for me to illustrate the subject in a still more particular and practical manner, by taking cases from each class, and describing minutely and as intelligibly as I am able, what I regard as essential to the purpose.

Let us begin with a case where the natural roof is entire, or nearly so, the lesion being limited to the soft parts or natural *velum palati*. For this an arch of gold plate or "hard rubber" is first to be fitted to the roof of the mouth, and secured by clasps to the teeth, or by atmospheric pressure. This plate should extend backwards so far that its posterior margin may be about on a line with the apex of the fissure (*B*, Fig. 1). Just at this middle point a strong *tongue-like process*, about one-quarter of an inch wide and three-eighths long, projects from it obliquely downwards and backwards in the plane of the fissure. On the back, and near the end of this process, is inserted at a right angle to it, a pin or *pivot*, *p*, of thick gold wire, about one-fourth of an inch long, and with a small tooth-like process at the extremity. A short gold tube, *s w* (*D*), with a slot in one side, is then made to be slipped on to the pin, so that, if turned either way, it is held there by the tooth at the end of the pin. This slotted tube, or *swivel*, *s w*, is then soldered on to the upper side of a *back-plate*, *b b*, which is a small gold plate bent or swedged to correspond to the posterior surface of the rubber velum at its upper end—the velum to have a hole through it corresponding to the position of the pin on the back of the tongue-piece and the swivel on the back-plate. By passing the pivot through the hole in the velum, and the swivel of the back-plate laid on above it, and then turning it a quarter round, the velum will then be held between the two plates, and thus securely attached to the roof. The velum can turn on the pivot but very little while in the mouth, but taken out, it can be turned a quarter round, so that the tooth on the end can pass through the slot, and the two plates be detached.

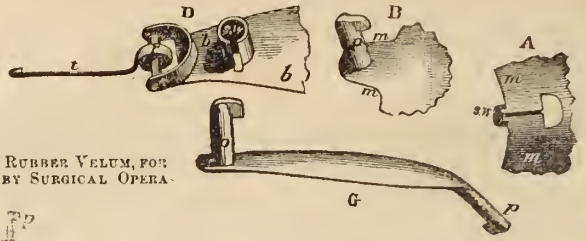
At the lower end of the back-plate, (*D*), *b b*, is a delicate *conchoidal*

*spring*, *r*, of flattened gold wire, terminating in a straight portion or *tail*, *t*, which passes through an eye or *loop* of wire, *l*, which is baked or vulcanized into the rubber. The necessity for this spring will be explained further on, when describing the parts of the rubber velum.

In those cases that will sometimes present themselves, where the fissure has been closed by a surgical operation for a distance of one-half or three-fourths of an inch from the bone, I connect the velum to the roof by a method differing somewhat from that just described, that is, by a *flexible* attachment. At the middle or highest point on the posterior margin of the roof-plate, (*A*), *m m*, I insert a slotted tube or swivel, *s w*, horizontally from before backwards. I then take a piece of gold wire, about one-twentieth of an inch in diameter (*G*), and solder a tooth to one end, so that it may be passed into and held by the horizontal swivel in *A*. The middle portion of this wire is then flattened, by hammering very thin, so as to make of it a delicate and elastic spring, and somewhat flattened, also, quite to the lower end. On the back and upper side of the flattened lower end I solder an upright toothed pivot, *p*, similar to that described on foregoing page, and which passes through a hole in the velum proper, near its apex, and then through the swivel on the back-plate, as before described. Thus it will be understood that in these cases two swivels are used—one horizontal, the other vertical. The spring formed by the flattened wire connects the velum to the roof-plate, and accommodates itself to the limited muscular movement from before backward, which may result from the partial union of the soft parts previously effected by the surgeon.

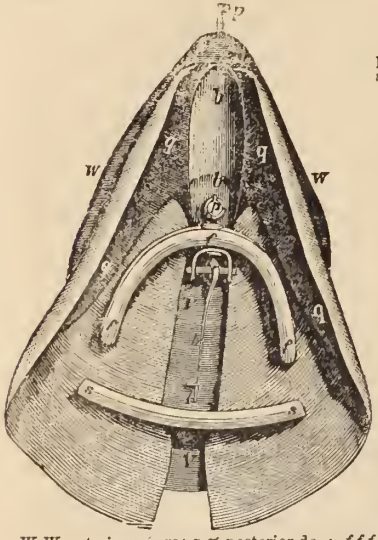
I come now to the more formidable class of cases, where the fissure extends quite through the maxillary bones, and sometimes includes two or more of the alveolar sockets. In all cases of this sort I would advise the use of the "hard rubber" for the roof-plate, gold being quite too heavy for so large an artificial roof as is required in these cases to fill the opening. The substance of the roof-plate is continued backwards to a point a little beyond that where the hard bony edges of the fissure end and the soft edges begin. No tongue-like continuation, nor any spring of flattened wire, as described in the preceding cases, is required for these; but near the posterior margin, and at the middle, a vertical toothed pivot is to be firmly vulcanized into the substance of the hard rubber, and which is to pass through the velum and socket on the back-plate, in the same manner as before described. The greater difficulty met with in getting good casts of these cases, where the opening is so extended and irregularly shaped, requiring to be filled and fitted by an instrument of corresponding size and irregularity of shape, adds considerably to the labor. Figure 5 is a

FIG. 1. GOLD ATTACHMENTS.—VIEW CONSIDERABLY ENLARGED.




*A* and *B*, portions from posterior margin of roof-plate; *p*, toothed pin or pivot; *s w*, slotted tube or swivel; *r*, chonchoidal spring, with hooked tail-piece, *t*.

FIG. 2. POSTERIOR VIEW OF RUBBER VELUM, FOR CASE PARTIALLY CLOSED BY SURGICAL OPERATION.




*W W*, anterior wings; *q q*, posterior do.; *f f f*, upper bow or spring; *s s*, lower do.; other letters same as in Fig. 1.

FIG. 3. ANTERIOR VIEW OF VELUM FOR SIMPLE FISSURE OF SOFT PALATE.

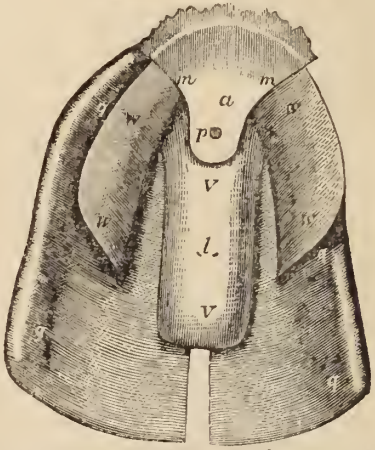
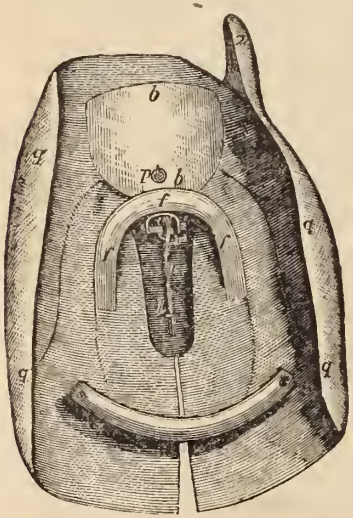


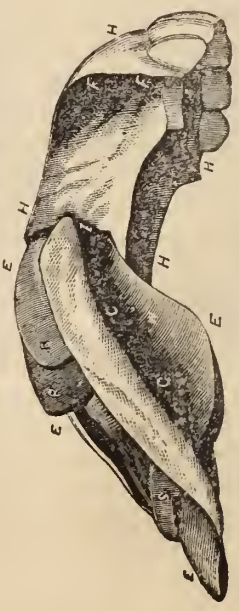

FIG. 4. POSTERIOR VIEW OF VELUM MADE FOR HARE-LIP SUBJECT.

*W W*, wings covering anterior surface; *q q*, parts of velum lying behind the fissure; *V V*, valve covering the central opening; *m m* and *p* are the same as in Fig. 1.




Same letters refer to similar parts as in Figs. 2 and 3.

FIG. 5. SIDE VIEW OF VELUM JOINED TO A HARD RUBBER ROOF PLATE.




*E E E E*, Velum; *H H H H*, the hard rubber roof-plate; *C C*, the groove at side of velum to receive the edges of fissure; *R R*, rubber processes rising vertically each side of the vomer; *s*, lower rubber bow or spring.

side view of an instrument made for a very wide fissure of this class. The "hard rubber" roof-plate, *H H H H*, was made and several front teeth attached to it by a skilful dentist of this city. In adapting the elastic velum, *E E E E*, I proceeded on the same plan as in other cases, excepting that the vomer, which was incomplete and pendent from the base of the cranium on the median line, was somewhat in my way. The letters *R R* indicate two pretty thick and firm rubber processes, on the upper or back side of the velum (admitting the vomer between them), and through which passed two horns, made by soldering a piece of gold wire across the back-plate. This latter feature I have never before found it necessary to adopt; but in order to give the velum firmness, without at the same time impairing its elasticity, I thought it desirable to steady it from a point as high up as possible.

In this figure the letters *C C* indicate the lateral groove adapted to receive the fleshy edges of the fissure; and also at the letter *s* may be seen a portion of the bow or inferior rubber spring, on the back surface of the velum, connected with it only at its ends. This lower spring or bow is particularly necessary in vela of very large size, to insure their permanent elasticity.

In this class of cases it will be found necessary to mold the under surface of the artificial hard rubber roof much deeper or more concave than is seen in the well-formed natural roof, and from the upper surface to carry up two walls or ridges of the material toward the base of the cranium, one on that side where the vomer articulates with the maxillary bone, to be inclined a little inwards towards the median line, the other to be inclined a little outwards, so as to overhang the projecting edge of the imperfect maxillary on that side. By looking at the drawing (Fig. 5) it will be seen that the upper or forward end of the elastic velum at *I* projects considerably forwards, so as to overlap, for half an inch or more, the posterior margin of the hard rubber roof, and also that it is much broader on the side than the roof-plate. It is by this arrangement that the instrument is firmly held in its place at the middle and posterior region of the fissure, while the clasps and atmospheric pressure keep up the plate anteriorly. This is a very important point to be attended to, as giving an equal and easy support to the whole apparatus, which cannot be done *permanently* by clasps to the teeth, or any jointed mechanism in the artificial roof.

Having now described the solid and metallic parts composing the roof and the attachments of the velum to it, I will now proceed to the different essential parts of the artificial soft rubber velum. The vela are all constructed on essentially the same plan for each of the different varieties of fissure, but will differ greatly in their shape, size, and proportions. Thus in a case where the fleshy parts have been partly

united by a surgical operation, the general shape of the velum will be that of an equilateral triangle (vide Fig. 2). For a case of fissure extending through the bony roof, the velum will have more the shape of an oblong quadrilateral (vide Fig. 4); and for simple fissure of the soft parts the velum will have a shape somewhat between the two other forms (vide Fig. 5). The engravings, Figs. 3, 4, 5, are views of the three forms that will be found adapted to all forms of *congenital* fissures, the same letters referring to similar parts in all.* The lower or posterior margin of the velum is curved, to adapt it to the shape of the pharynx, with which it comes in contact. The corners are rounded so as to enter and lie in the deep narrow spaces made on each side by the meeting of the lower extremity of the slender palato-pharyngeus muscle with the pharyngeus, and a little lower down than the tonsils which lie in front of them. The surface of the velum-proper at its lower third is slightly concave in front and convex behind, to adapt it to the shape of the pharynx, in which it is placed. Through the middle of the velum is a slit, extending from its lower margin upwards to one half or more of its length. Above this slit (see the posterior views, Figs. 3 and 4), and continuous with it, is an opening about one-eighth or three-sixteenths of an inch wide, extending quite up to the junction of the velum with the roof-plate. In front of this opening, on the anterior surface of the velum (see Fig. 3), is a tongue-piece of rubber, half an inch wide, *V V*, attached to the velum at its upper end, so that it acts as a valve to close the opening through the middle just described; thus the two halves of the velum proper are allowed to slide freely one over the other by the compression of the surrounding muscles, and the whole forms, in fact, *a valve within* or *upon a valve.*†

* For cases of syphilitic fissure no plan is here given, as I have never had but one subject, and in that one the opening was almost a full circle, about three-fourths of an inch across, the muscularity being much limited by cicatrices and attachments. The velum for this somewhat resembled a large flute key, both in its shape and action.

† I wish here to be understood as saying, in exact terms, that I consider the slit and opening through the centre, and its closure by a sort of valve on the anterior surface, as an essential feature of all artificial vela; and also that I do not acknowledge the remotest obligation to any other person for this one idea; and which did not present itself to my mind until I had occupied myself with my first case (in '41 and '42) for more than a year. Previous to that, all my time had been occupied in futile attempts to mold the plastic rubber to a copy of the natural velum. The moment this idea of the middle opening and valve suggested itself, I felt confident that a great point was secured, and that contractility, if not muscularity, was attained; for to give muscularity to any work of human hands is manifestly as much beyond our reach, as to make a glass eye that shall receive and convey impressions to the brain.

The anterior surface of the velum (Fig. 3), with the valve *V V* covering the central opening, presents a smooth and slightly concave surface, and therefore needs no particular demonstration. Referring to figures 2 and 4, a view is had of the posterior surface of the velum, *H*, and more is seen that needs to be explained; for it is on the posterior surface of the artificial velum, where there is plenty of room, that we can place all the mechanism that we may wish to adopt for the purpose of attaching the velum to the roof-plate, and also for giving to it that delicate and permanent elasticity fitting it for the place it is designed to fill. Half an inch or more above the lower margin, on the posterior surface, is seen a rubber *bow* or spring, *s s*, about one-eighth of an inch thick, an inch long, laid across and attached to the velum only at each end, so as to allow the opposite halves or flaps of the velum to glide freely one over the other.

This *bow* or spring at the lower part I consider very necessary in all vela of large size, and perhaps useful in the smallest. A large velum without it will soon begin to lose some part of its original elasticity, and become warped out of its shape, so that the wearer will be suddenly conscious of not deriving so much benefit from its use as he has been accustomed to do; so I would advise those who may undertake the work not to omit this lower spring, though it adds considerably to the labor.

Near the upper end, on the back side, is another rubber bow or spring, *f f f*, also essential to the elasticity of the velum. The back-plate, *b b*, is seen to cover a part of the posterior surface of the upper end of the velum, and its lower end passes under the bow, *f f*, between it and the valve, *V V*, on the anterior surface. Here it receives the conchoidal spring, *r*, which terminates in a cue or tail, passing through an eye or loop of wire, *l*, which has been vulcanized into the substance of the rubber. The use of this spring is to keep the valve *V V* gently pressed against the anterior surface of the velum, and prevent it from drooping, so as to open the passage for the escape of sound upwards. The lateral attachments to the body of the velum-proper, *q q*, covering the posterior surfaces of the edges of the fissure, and *W W*, covering in like manner the anterior surfaces, have already been referred to. That part of the upper end of the velum which is prolonged forwards so as to overlap the roof-plate, (see *I*, Fig. 5,) and also widened so as to bear upon the superior surface of the projecting edges of the fissure, should be made considerably thicker and firmer than the body of the velum below.

From this description of the form, plan, and size of the elastic artifivial velum, it will be understood that it is in no respect a copy of the perfectly formed natural organ, but an elastic valve acted upon and

compressed by the surrounding muscular tissue with which it is closely in contact. The natural organ has muscular *vis insita*, which is a vital quality that no art can give to inanimate substance. The best substitute for this vital contractile power is the plan here detailed, of making the body of the velum to consist of three parts, joined at the top, and which can slide freely one over the other, and thus expand and contract by the lateral pressure of the surrounding muscles. It was this idea of the three pieces that decided the success of my first case. Eighteen years have since elapsed, and I have not yet conceived any other possible way of constructing an instrument at once simple, delicate, and durable, than in this *triple* form; and though I trust and believe that others will hereafter improve upon my methods, I am confident that this one feature will be preserved in all successful "Obturators."

There is one physiological fact to encourage the operator who may undertake to remedy imperfect speech by his mechanical appliances: that speech, or articulated sound, is not a vital function, like the circulation, respiration, or digestion, but a mechanical function, performed by mechanical agents. The characteristic sound of several of the letters of the alphabet is constantly produced by certain familiar objects around us. Thus the rapid passage of steam or of air through a crevice produces a hissing sound which is identical with that of the letter S, which is also made by forcing the breath through the interstices of the teeth. The buzzing of the wings of insects, or the sound made by a flat splinter of wood tied to the end of a cord and then whirled rapidly through the air, is simply the letter Z. On inverting a bottle filled with water so that the liquid may flow out by intermittent jets, the perfect sound of G (hard) is at once recognized. The sudden breaking of a stick will give the sound of X or KS. In short, the elementary sounds of all the letters of the alphabet have long ago been imitated more or less perfectly in automata made by patient and ingenious mechanicians for public exhibition.

The object of the labor and skill bestowed in making and adapting an artificial velum is not attained when the instrument is completed, be it performed never so skilfully, for the speech remains almost unchanged; nor is there much involuntary improvement, but at first only a sufflated tone, like that of a person with a cold. There remains a course of *vocal practice* to be entered upon and patiently persevered in, before any great improvement in speech* is attained.

* Ever since my attention was first given to this subject, I have, from time to time, met with newspaper accounts of persons, with congenital fissure of the palate, "being enabled to articulate perfectly," &c., &c., by the aid of some piece of mechanism that some one had just made for them. Now, I wish here to take the

The necessity for this instruction and training delays the beneficial results of the operation, and is what some patients are disinclined to undergo; and this delay and difficulty, presenting itself in the course of my experience, has had considerable weight with me in withdrawing my attention from the subject. But patients should be made to understand clearly, at the outset, that after the instrument is made, then *they* have something to do; that they must in some part "minister to themselves." To do this, they, of course, will need specific instruction; and I had proposed to explain a system of vocal practice, that I have arranged and made use of, for the development of the faculties of speech in those who, all their lives before, have never possessed the organs needed for perfect articulation. This plan or system of vocal practice I have, however, decided to reserve for a future essay, if what I have already written, to illustrate the mechanical part of the subject, should prove of sufficient interest to make any further publication desirable. My remarks already have covered more space than I at first anticipated; yet I must add some further observations, taken disconnectedly from written memoranda, copies of letters, &c., not originally meant for publication.

I. The pain or inconvenience to patients, on beginning to wear the instrument, is inconsiderable—surprisingly so; in fact, I have myself been astonished to find that they were not unwilling, on the first day, to walk home through the streets with a mechanical apparatus in the mouth, so long as to reach from the front teeth to the anterior process of the fourth cervical vertebra (which vertebral process, can be seen and felt just under the mucous membrane of the pharynx), and so broad that the sides of the velum near its lower end, touched the styloid processes of the sphenoid bone (which can also be felt with the end of the finger, behind the columns of the fissured velum), and so high, also, as almost to reach the base of the cranium; so that if I may, hereafter, be thought to have achieved very little, in comparison with what future years of experience and improved skill may bring to pass, I have at least demonstrated that a very large piece of artificial work can be worn in the throat with ease and comfort, while eating, drinking, sleeping, coughing, sneezing, vomiting, &c. In a late case, the patient persisted, contrary to my advice, in sleeping at night without removing the instrument.

II. It will not be of much use to undertake the case of *uneducated* persons. I recollect, that, while in Paris, Amusat sent for me one day. On going to his house, I found standing about the gateway quite a collection—a small crowd, in

responsibility of saying, in plain words, such a result is physically impossible; and all statements of that kind can only cruelly disappoint those who are confidently hoping for relief from a life-long infirmity. Only in cases of grown persons, where the soft palate has been partly destroyed by syphilitic disease, or in those very rare congenital cases, where the fissure extends only through the bony roof, leaving the soft palate entire, will the adaptation of any artificial apparatus cause immediate and marked improvement in the speech.

fact—of cases, of both sexes, of all ages. I was obliged to say to him that I could hardly hope to do them any good, for they have neither the time nor means to spare, and if supplied with the instrument, they would not take the proper care of it, nor be likely to improve by vocal practice; and, what is more to the point, they feel but very little want of anything of the sort.

III. Young persons, with palatine fissure, are often quite indifferent to the chances of getting relief; the reason of which is, that they are not fully aware of the extent of their difficulty. They are, perhaps, conscious of a want of vocal power, but do not know that they fail to articulate the sound of a great many of the letters. They do not hear their own voices as others hear them.

IV. One of my patients was as much surprised and pleased as M. Jourdain (see Moliere's *Bourgeois Gentilhomme*), when taking a lesson from his philosophical teacher, on being instructed how to place and move the tongue or lips in order to produce the characteristic sound of any given letter, and that such a movement would invariably produce that sound, and no other. Of this necessity they have never before known, because they were without the complete natural mechanism. Sound is the natural stimulant of the action of the vocal organs, as much as the blood of the heart, the air of the lungs, the food of the stomach. If this stimulus of sound cannot be confined and controlled for a moment, but if, the moment it issues from the glottis, it is dissipated through the nasal passages, the tongue and lips do not fully get their appropriate stimulus, and fail to act only in a partial manner. In fact, if they were to act with the same rapidity and power as in persons with a normal state of the organs, the imperfection of speech would be thereby rendered more striking, because they force yet more of the sound through the nasal passages. The soft palate is the antagonist of the lips and tongue, in the same manner that the thumb is the antagonist of the four fingers. So the sound, or voice, or vowels of the alphabet, are grasped, impressed, and molded—stamped with consonant letters, as a coin is struck between *two* dies, or iron is shaped by the smith between the hammer and the anvil. If one die be wanting, or the iron should be held up in the air and struck, no impression could then be made upon it. So that a person with palatine fissure, instead of being instinctively stimulated to perform the act and function of articulation, is instinctively discouraged from such efforts, from finding that the sound, supplied as the material of speech, instantly eludes the muscular impact, and therefore receives no impression. I have reasons for believing, moreover, that in these cases the muscles at the upper part of the neck, just above the larynx, remain in a dormant and flaccid state, because that region, just below the jaw, usually has a lean appearance externally; and in one case, where the instrument has now been worn for years, I know that the neck has acquired a more full and fleshy appearance.

V. I have been often asked, at how young an age may it be practicable or advisable to adapt an artificial instrument? and I have answered, Not younger than 16 or 17, probably. In this opinion I am by no means fixed, or, rather, I have changed to quite a different one, and will now answer, At as early an age as the patient has intelligence enough to handle the instrument, and take the proper care of it. The instrument, as made several years ago, being so delicate and complicated as to be liable to derangement even in the hands of grown persons, and also fastened wholly to the teeth, so that it must interfere with the natural growth of the bone, was doubtless unsuited for the ease of a very young

subject; but as now made, without the spiral springs, and supported chiefly by the edges of the fissure, it may be adapted, in my judgment, with benefit to a child. The natural growth and enlargement of the parts would necessiate the making of a second and third instrument. The advantages of applying the instrument as early as possible, are: 1st. Present convenience and improvement, saving thereby several years of an embarrassing impediment. 2d. The early natural use and action of the muscles concerned in speech would be promoted. Grown persons, with fissure, never, according to my observation, make the appropriate movements of the tongue for certain letters, as K, G (hard), D, R, and often P, B, V, and F; and, after adapting the instrument, it has taken a great deal of persevering instruction to make them place the tongue so as to utter a given sound. But a child of six years, with pretty large fissure, that I saw a few months since, when I gave her a word with K, did make precisely the necessary movement of the tongue that would have produced the sound of that letter, had there been no opening into the nasal passages. My deduction is, therefore, that as she grows up she will cease, instinctively, to make an effort which habitually fails of its purpose; but if she is supplied with something to close the opening, her tongue will continue to perform its functions effectually. Now she is like a person blowing a fire with a large hole in the leathern sides of the bellows. I have been requested by the parents to adapt an instrument to her case, and I shall proceed with it, if I can attach the artificial roof in such a way as not to interfere with the growth and expansion of the bones.

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# Proceedings of Societies.

## AMERICAN DENTAL CONVENTION.

The sixth annual session of the American Dental Convention was held at the Metropolitan Hall, at Saratoga Springs, on Tuesday, August 7th, 1860, and continued its session the 8th, 9th and 10th.

### LIST OF MEMBERS.

*Connecticut.*—W. Potter, Norwich; R. G. Reynolds, Waterbury; Samuel Mallett, New Haven; Wm. H. Sheffield, New London.

*District of Columbia.*—Mahlon Loomis, Washington.

*Florida.*—P. P. Lewis, Tallahassee.

*Georgia.*—F. Y. Clark; W. Johnson, Savannah; H. B. Arnold, Thomasville.

*Kentucky.*—A. S. Talbert.

*Louisiana.*—D. Beatty, Ponchatoulas.

*Massachusetts.*—George L. Cooke, Milford; J. McGregory, Southbridge; F. Searle, C. S. Hurlbert, Springfield; S. J. Wetherbee, Boston; W. L. Bowdoin, Salem; S. G. Henry, Westborough; Thos. Palmer, Fitchburg.

*New Hampshire.*—P. A. Stackpole, Dover.

*New Jersey.*—L. G. Luman, G. F. J. Colburn, Newark.

*New York.*—W. B. Roberts, Geo. H. Perine, A. C. Hawes, Frank H. Norton, W. H. Dwinelle, John D. Chevalier, A. McIllroy, L. Coville, Geo. Clay, J. Smith Dodge, William Dalrymple, Chas. S. Miles, T. H. Burras, E. A. L. Roberts, H. Merriman, B. W. Franklin, C. C. Franklin, John Allen, J. S. Latimer, New York City; S. L. Smith, Clayville; H. Jameson, Jr., Lyons; A. Westcott, Jas. Chandler, Syracuse; D. Van Denburgh, D. S. Goldey, Oswego; A. N. Priest, L. W. Rogers, Utica; M. W. Wilson, Saratoga Springs; T. E. Parkman, N. W. Shattuck, Troy; E. B. Palmer, Tully; Geo. E. Knox, Glens Falls; Jas. C. Duell, Amsterdam; Allen Clark, Poughkeepsie; J. P. Beardsley, Clinton; E. Beckwith, Westmoreland; D. Knower, Scholiarie; J. H. Thurston, Fort Edward; John E. Savory, Cato; Wm. H. Klock, Little Falls; J. C. Austin, J. A. Perkins, Albany; Wm. S. Lee, Sodus; C. F. Rich, Schuylerville; J. W. H. Tefft, Ticonderoga; P. Hogan, Waterford; E. F. Wilson, Rochester; S D. Arnold, Ballston Spa; B. S. Brown, R. G. Snow; B. F. Whitney, Buffalo; J. C. Gifford, Westfield; William B. Hurd, W. C. Parks, Williamsburgh; J. C. Monroe, Brooklyn; L. Gilman, St. Andrews; M. B. Stenson, Prospect; S. M. Robinson, Watertown; L. W. Sutton, Long Island; Thomas D. Evans, New York Mills.

*North Carolina.*—R. Scott, Fayettesville.

*Ohio.*—Wm. A. Pease, Dayton; J. Taft, Cincinnati; Wm. H. Atkinson, Cleveland.

*Pennsylvania.*—J. R. McCurdy, H. Merritt Assay, J. Lambert Assay, T. L. Buckingham, S. S. White, Philadelphia; C. B. McDonell, Conneautville.

*South Carolina.*—B. A. Roderigues, Charleston.

*Tennessee.*—E. D. Wheeler, Murfreesboro'; C. F. Munter, Jackson; W. H. Morgan, Nashville.

*Vermont.*—A. P. Hall, E. V. N. Harwood, Rutland; N. Tefft, Poultney; H. Kingsley, Middlebury; L. D. Cox, Pittsfield; D. W. Prime, Brandon.

*Virginia.*—James Johnston, Staunton.

*France.*—C. S. Putnam, Paris.

*England.*—Isaac Sheffield, London; E. Gidney, Manchester.

The executive committee reported the following order of business:

1. Reading minutes of last meeting.
2. Reports of officers and committees.
3. Admission of members.
4. Election of officers.
5. Retiring President's address.
6. Induction of officers elect.
7. Miscellaneous business.
8. Essays and discussions.

All essays shall be read to open the discussions on the subjects to which they relate, and shall be limited to twenty minutes in length.

I. *Artificial Dentures.*—Preparing the mouth; materials for, and modes of obtaining impressions and models; various bases and their manipulations.—*Metals, Minerals, Gums.*

II. *Structure and Nutrition of the Teeth.*

III. *Irregularities.*—*Causes; Treatment*—Prophylactic and Remedial.

IV. *Sensitive Dentine.*—*Pathology. Cause; Treatment.*

V. *Exposed or Wounded Pulp.* — *Prognosis. Treatment* — Preservative, and when devitalized.

VI. *Diseased Dentine.* — *Pathology. Causes* — Remote and proximal, including the effect of different diseases and medicaments upon the teeth. *Treatment* — Prophylactic, *general and local.* Remedial, *general and local,* including materials for, and modes of filling.

N. B.—No member to speak more than fifteen minutes, or more than twice upon the same subject, without permission.

9. Exhibitions of models, improvements, or inventions, with miscellaneous discussions or unfinished business.

Geo. F. Foote,
Joseph Richardson,
T. H. Burras,
Jeremiah Mason,
S. M. Robinson,
} *Executive Committee.*

The election of officers being in order,—

The following gentlemen were unanimously elected as officers of the convention for the ensuing year:

President: Dr. T. L. Buckingham, Philadelphia, Pennsylvania.

Vice-President: Dr. B. A. Roderigues, Charleston, South Carolina.

Recording Secretary: B. W. Franklin, New York City.

Corresponding Secretary: Dr. J. B. Wetherbee, Boston, Massachusetts.

Treasurer: Dr. A. N. Priest, Utica, New York.

The President appointed the following gentlemen to constitute the executive committee for the ensuing year:

Dr. F. Y. Clark, Savannah, Georgia; Dr. F. Searle, Springfield, Massachusetts; Dr. B. F. Whitney, Buffalo, New York; Dr. E. D. Wheeler, Murfreesborough, Tennessee; Dr. W. A. Pease, Dayton, Ohio.

Dr. L. W. Rogers, on retiring from the chair, made some very appropriate remarks: took a glance at Dentistry as it is, and what it was a few years ago; was satisfied we had made progress; thought many calling themselves Dentists, were sadly deficient in qualifications; thought we had many able writers, professors, and operators, and a fair proportion of members of respectable talents and attainments, but there is a large class of mere *Tooth Tinkers;* thought quacks and pretenders common to all professions, but they are more degrading to Dentistry, for the reason that the public have no means of distinguishing between the worthy and the un-

worthy; we have no recognized authority to declare who are and who are not qualified to practise; thought where there was a wrong there was a remedy. The only remedy which suggested itself to his mind was the one proposed by Dr. Wescott, of Syracuse, in a letter to the New York State Dental Association,—that a number of the prominent Dentists in any of the States get together, and apply to their several Legislatures for a charter for a Dental Institute, with certain powers to hold property, establish a Library, provide Lectures, and grant Diplomas, to all persons duly qualified to practise, after having undergone a thorough examination before a board of competent examiners, &c. Many of our best Dentists stand aloof from all organizations; thought this was wrong. It was in their power, and it was their duty, to aid in purifying and elevating our profession.

Drs. Allport, of Chicago, Ill., and Dwinelle, of New York City, conducted the President elect to the Chair. A vote of thanks was tendered to the retiring officers. Dr. Buckingham, on taking the Chair, addressed the convention in a few appropriate remarks, after which the convention took a recess till four o'clock.

FOUR O'CLOCK P.M.

The President in the Chair.

The regular order of business was taken up, viz:

Artificial Dentures; preparing the mouth, materials for, and modes of obtaining impressions and models; various bases, and their manipulations; metals, minerals, gums.

B. W. Franklin, of New York, read a paper on Mechanical Dentistry, which was published in the August number of the *Vulcanite.*

Dr. John Allen, of New York, read a paper upon the structure of Artificial Dentures. To be successful in this department, we must begin right, and keep right, in order to come out right. It is said that there are five hundred causes for the stoppage of a watch. If this be true, how many causes are there that would defeat a good practical result in forming a set of teeth. From the taking of the impression, through all the different stages of the work, to the final completion of a denture, various causes may occur, either of which might prove fatal to perfect success. The greatest practical utility should be the great point aimed at in the construction of Artificial Dentures. A Dentist who constructs Artificial Dentures as they should be, must possess both artistic conceptions and the artisan's skill to execute, in order to meet the exigencies involved in his operations. In one instance he has to insert short teeth, in another long. The lighter and darker shades, the peculiar tint and tone of the teeth and gums, the size, form, position, and expression of these organs, together with their perfect adaptation and harmony with the other features of the person for whom they are intended, require the finest powers of discrimination and manly execution, in order to conceal the art employed in forming them. It does not follow, that the well-qualified should be placed upon the level with those who form the lower ranks of this department. No! Let those who occupy a higher ground stand firmly where they are, and not relin-

guish to their inferiors that branch which is of so much importance to the civilized world, as some of our best operators have done, especially in our large cities. In reference to the various modes now in vogue, they all seem to have their place, and may be adopted under the different circumstances attending each particular case. When consulted, the operator should examine carefully, and then decide as to what method will secure to the patient the greatest degree of practical utility and personal gratification, and advise accordingly, bearing in mind that whatever be the mode, skill, taste, and judgment must preside over the operation, for there is no system so perfect as to render these unnecessary. Dr. Allen went on to speak of the merits of Continuous Gum work, answering many of the objections urged against it. He has been able to approach much nearer the acme of his ambition by means of the Continuous Gum system, than any other with which he is familiar. This interesting paper is published in full in the *Dental Register of the West*, September number, and several other dental journals, to which the reader is referred.

Dr. F. Y. Clark, of Savannah, Georgia, used a batter composed of equal parts of plaster and fine ground spar, sometimes two parts spar to one of plaster, for taking impressions of the mouth ; exhibited flasks and impression cups. Places the impression in one end of his flask, then fills in around the impression cup with the same mixture ; dries it on the fire, and pours in the metal—he prefers zinc. These flasks are so arranged, that by turning the flask over, the bed or female contour can be run on to the zinc ; the use of sand is avoided. This metal facilitates the getting up of dies, and illicited a good degree of interest among the members. A full description of this Flask and the manner of manipulating with it, is published in the June number of the *Dental Cosmos*, 1860.

Dr. T. H. Burras, of New York City, read a paper on a new method of obtaining a metallic die from the impression of the mouth ; this paper was published in the August number of *The Vulcanite*, September number of *Dental Cosmos* and *Dental Register of the West.*

Dr. Sutton, of Long Island, is in the habit of taking impressions of plaster mixed with silex ; after drying the impression, drills a number of small holes through the impression of the alveolar ridge and palatine arch, fills these holes with fine molding sand, and pours zinc into the impression ; the moisture from the impression passes through the sand.

Dr. Atkinson, of Cleveland, O., inserts temporary sets immediately after extracting. If the gum is soft, cuts it away considerably, and with excising forceps removes the alveolar process sufficiently to make an even denture ; sets the base or ends of the teeth in the places from which the teeth have been extracted.

Dr. Roderigues sometimes takes an impression of the mouth before the teeth are extracted, then cuts off the teeth from the mould, carves the mould to represent the ridge after the teeth are extracted ; then completes the denture, extracts the teeth, placing the base or end of the artificial teeth in the sockets from which the others were removed.

Dr. Wetherby, of Boston, Mass., after extracting teeth, removes

such points of alveolar process in rough arches with cutting forceps, and the gum with scissors ; usually waits three months after extraction before inserting temporary sets; reduces the arches on the plaster casts, making the plate smaller than the mouth ; secures the plate in the mouth by means of springs ; after a time the plate will fit.

Adjourned.

SECOND DAY—MORNING SESSION.

The subject continued.

Dr. John Allen, of New York, usually inserts temporary sets immediately after the teeth have been extracted. He does not allow the plate to extend over the anterior portion of the alveolar process. If a long time is allowed between the extraction and insertion of teeth, there will be an alteration in the position of the condyles and the angles of the jaw, besides a change in the expression of the face, which it is important to retain. Another reason for immediate insertion is, that the patient will acquire the use of artificial teeth with greater facility, and that the cheeks, tongue, and secretions of the mouth will assist in the different movements.

Dr. B. F. Whitney, of Buffalo, N. Y., extracts teeth, and inserts temporary sets immediately. The projecting points he carefully removes.

Dr. Covil, of New York, spoke of the offensive smell of the Vulcanite Base. When placed in the mouth could smell it two or three feet from the patient. Also objected to the presence of sulphur ; considered its effects would be deleterious to the patient—thought it would produce *Match Factory disease ;* avoids the use of atmospheric plates—would not use these in one case in a hundred ; sets of teeth will adhere longer without an air chamber than with one.

Dr. Hurd, of Williamsburgh, L. I., did not object to sulphur in the Vulcanite material, and considered the smell would not be perceptible if properly prepared. He considered that all the kinds of work had their advantages in special cases. If we were as faithful to our patients as the materials are to us, we would obtain a higher degree of perfection. He inserts temporary sets as soon as possible after extracting. He referred in appropriate language to the responsibility and trials of the dental profession.

Dr. D. S. Goldey, of Oswego, N. Y., referred to the many advantages of the Vulcanite Base. Was wearing a full upper case in his own mouth ; did not experience any of the objections mentioned by Dr. Covil.

B. W. Franklin, of New York City, said that in regard to the presence of sulphur after vulcanization, a strict analysis would not detect its presence ; had seen cases that had been worn in the mouth constantly for over five years, and they showed no signs of change or decomposition. Thought the gentleman from New York reflected upon the intelligence and honesty of the large number of the Dentists in all parts of the country, who were using the Vulcanite Base in their practice ; thought the Vulcanite Base invaluable ; nevertheless, other bases had their advantages in certain cases.

Dr. Taft, of Cincinnati, O., inserts temporary sets immediately after extracting ; finds nothing better than Continuous Gum work

for such sets. He allows the plate to extend only to the necks of the teeth, and with the body fills up any depressions. If teeth are not inserted immediately, a lateral movement of the jaw will be induced, which will take much time and patience to overcome; there will also be a change in the cheeks and muscular tissues, and particularly in the natural expression of the face, which it is important under all circumstances to retain. The facility of use of language is also readily obtained, a difficulty which can rarely be overcome if no teeth have been present in the mouth for a long time. His only objection to the Vulcanite in such cases was, that the material, in consequence of its color, could not be placed in the anterior portion of the arch.

Dr. W. B. Roberts, of New York, spoke of what had been claimed for the Vulcanite material. Said the color of the Hard Rubber was produced by the oxide of mercury, *which must affect* the system unpleasantly; it should be an object with all to introduce the purest material; he claimed that the Continuous Gum work had such advantages as could not be claimed by other materials; the color of the Vulcanite Base, he said, was changed by repeated heatings in mending.

Dr. Atkinson remarked that he was requested to present to the notice of the Convention an invention of Dr. C. Palmer. Upon carving a set of teeth, he separates the gum (after biscuiting) over the bicuspids and molars, and by this means he avoids the usual shrinkage.*

Dr. Colburn, of Newark, N. J., spoke of the advantages of Continuous Gum work; has no trouble in repairing it; has made a great many cases with satisfaction.

Dr. Merriman, or New York, does not allow plates to extend very far back, and uses small air chambers.

Dr. D. S. Goldey, Oswego, spoke of soldering Continuous Gum work with arsenic and platina. Puts the teeth on a rim in the usual way; protects the plate and rim by covering them with a thin coating of floated silex, leaving a narrow line exposed where the solder is required to flow. This solder can be made to flow with a common blow-pipe.

Dr. Searle, of Springfield, Mass., advocated the old plan of setting teeth upon gold plate; thought constant change not advantageous; believed if the old method was now introduced as a new invention, it would be universally adopted.

Dr. John Allen, of New York, spoke of the solder referred to by Dr. Goldey, and objected to its use, in consequence of its porosity, and that it made the plate brittle. Pure gold with one-twentieth part platinum made a better solder than even pure gold; it requires a high heat, but thought this no objection.

Dr. Clark, Poughkeepsie, N. Y., inserts temporary dentures about two months after extracting the teeth. Makes the plate thin; considers our practice should be somewhat *eclectic*.

Dr. Clay, New York, is in the practice of trimming the gums and filling the depressions in the model before molding; thought absorp-

* We did not get the idea how Dr. Palmer manipulated this improved method of making block teeth. Will Dr. Atkinson or Dr. Palmer explain more fully?—Ed.

tion ordinarily continued about two years. He uses Continuous Gum work, but does not solder the teeth. Uses those having a groove in them, into which he runs a platinum wire, which he solders to the posterior portion of the plate upon each side ; solders each of the pins in the teeth to the wire ; he perforates the plate, filling the spaces round the teeth and the holes in the plate with body ; uses plaster and sand for investing the teeth.

Dr. Wescott, of Syracuse, inserts temporary teeth immediately after extracting ; after absorption has gone on a while, he fills the spaces between the arch and plate with common Gutta Percha or Hill's Stopping, building on from time to time, until the inequalities are entirely absorbed ; sometimes uses chamois skin in the flabby conditions of the inferior arch.

Dr. Rogers, of Utica, was in favor of inserting temporary sets ; spoke of their advantages, and referred to cases where no teeth had been worn for a long time, and upon inserting teeth absorption commenced immediately ; thought there were difficulties attending immediate insertion, but thought these far less than where none were inserted.

President Buckingham, of Philadelphia, said that the most permanent set of teeth he had ever known of was one that was used in turn by three members of the same family as they *died off*.

### THE STRUCTURE AND NUTRITION OF THE TEETH.

Dr. Taft, of Cincinnati, remarked that with the anatomical structure he presumed all were acquainted ; believes there is a circulation through the dentine ; infers this from the formation of the dentine, its vitality, presence of nerve-fibres, and the ease with which fluids pass into it. Considers the nutrition of the tooth to be derived from the pulp internally, and periosteum externally.

Dr. Atkinson, of Cleveland, remarked, that the theoretical must ever precede the practical. In the formation of all living tissues, we first recognize *plasma* ; second, *cells ;* third, *organs ;* and fourth, *systems.* He said, to strictly define the *structure* of a perfected tooth, beginning at the periphery, we first divide a stratum of *cementum*, and successively one each of enamel, dentine, and pulp, to complete the survey or section : considered these were modifications of developmental law in tooth structure ; one is ossification of the pulp, which would not be endowed with the life principle to the full measure of the primary dentine ; the other was in hypertrophy of cementum, which is furnished with the full if not a plus degree of life principle ; he thinks the enamel is crystalline in structure ; thinks " Cleanliness is next to godliness ;" wishes that every dentist would appreciate its full significance, and enforce its practical necessity ; for just so far as we obey its precepts will we be exempt from the miseries of neglected organs and systems, and revel in the delights of health, purity, and truth.

Dr. Dodge, of New York, took exceptions to the term used by Dr. Atkinson, viz : the *crystalline structure of enamel ;* he remarked that crystals are the marvels of the organized world : there is nothing like them in the enamel, for when cut transversely and placed under the microscope there will rarely be found a true pentagon, longitudinally, these tubes will be found twisted and interlaced in

different shapes, and very irregular, possessing none of the attributes of crystals, each column being contained in an animal sheath. He referred to the circulation in dentine, and thought it similar to that of cartilage, viz: absorption from a vascular tissue of the plastic portion of the blood, without the presence of blood corpuscles, except in rare instances.

Dr. Wescott, of Syracuse, remarked, that when a student he adopted the circulatory theory, but now considers the enamel to be a crystalline body devoid of circulation, and the dentine to be so far divested of circulation as to be unapparent; thinks it has vessels permeating its structure, but with such a limited degree of vitality as to be unable to resist chemical affinity; referred to the vitality possessed by other structures, and their powers of resisting chemical agents; remarked that the gastric juice would dissolve the stomach were it not for this power.

Adjourned to meet at 4 o'clock.

AFTERNOON SESSION.

Structure and Nutrition of the Teeth continued.

Dr. Allen, of New York, advocated the use of coarse or unbolted grains as containing a larger proportion of earthy phosphates, said our food was deprived of these constituents by the present mode of preparing grain; he thought children needed no meat before four and but little previous to twelve years of age. Their food should be confined to coarse bread, milk, and other light articles of diet.

Dr. Taft, of Cincinnati, spoke of the importance of proper food for children; the teeth required the same kind of nutrition as the other osseous structures; alluded to the necessity of the mother being able to furnish proper nourishment containing a due quantity of the phosphates and carbonates; her food should be selected with discrimination. Had known cases of difficult dentition relieved by the use of phosphates.

Dr. Searle, of Springfield, Mass., said that he seldom had the control of patients, and could not administer constitutional remedies; he thought the treatment advocated by Dr. Taft impracticable.

Dr. Allen, of New York, thought much good could be done if each practitioner would publish a small volume upon this and other subjects, for presentation to his patients; he had adopted such a plan and thought much good had been accomplished.

President Buckingham said it was impossible at a convention of this kind to explain fully his views of the structure and nutrition of the teeth, as but ten minutes were allowed each speaker. He said there was one principle that was usually overlooked, viz., the *vital force;* we sometimes spoke as if it were only necessary to administer a certain amount of the phosphates, and they would be taken up and appropriated to building the osseous structure, just as certainly as though it were a mere mechanical process, and vitality had nothing to do with it. When food is taken into the stomach, it does not always nourish the body; for instance, two children may be at the same table partaking of the same food, one healthy, and the other sickly; in the latter, the power of assimilation is weak, and in the other, strong. Dentine received nutrition in the same manner as

the other tissues of the body, that the red globules of the blood did not go to nourish the tissues, but were merely carriers of nutrition. Vitality in the teeth gave them the power of resisting decay, which dead teeth did not possess. He did not consider the dentine to be crystalline, as such formations were not to be found in the animal or vegetable kingdoms.

Drs. Westcott, Buckingham, and Stackpole, made some further remarks on this subject, when

Dr. George H. Perine, of New York, presented the following resolutions :—

*Whereas*, The members of the medical profession in Great Britain and America are taking measures to erect a monument to the memory of the lamented and revered John Hunter; and as the dental profession owes, in a great measure, its present position, standing, and knowledge of the science of dentistry to the labors of John Hunter,—therefore,

*Resolved*, That the American Dental Convention, assembled, at their annual meeting, in Saratoga, this 8th day of August, 1860, do hereby desire to express their approval of the intentions of their brethren of the medical profession, and recommend to the members of this convention, and the profession throughout the United States, the offer of such pecuniary aid as may be in their power, for the advancement of this object.

*Resolved*, That a committee of three be appointed by the convention to communicate with the committee of the medical profession of Boston in relation to this subject, with powers to make such provision as they may deem necessary in the premises, and receive the subscriptions of this convention and other members of the profession, for transmission to the medical committee.

After some little discussion, in which several members participated, on motion of W. B. Roberts, New York, the resolutions were *tabled*.

It was then *Resolved*, That this convention meet in the city of New Haven, on the first Tuesday of August, 1861, at ten o'clock A. M.

Adjourned, to meet at nine o'clock to-morrow morning.

### THIRD DAY—MORNING SESSION.

Subject—"Irregularities of the Teeth; their Causes and Treatment."

Dr. Taft thought the failure on the part of nature in removing the temporary teeth, and the imperfect development and eruption of the permanent, were frequent causes of irregularity. When the arch is too contracted, the only treatment would be to remove some of the teeth or expand the arch; would extract one of the bicuspids or first molars in such cases. He spoke of the different methods and appliances employed for correcting irregularities.

Dr. Searle presented a case, gave his mode, and desired the opinion of the members.

Dr. Allen had ceased to use metal for inclined planes, and substituted hard rubber.

Dr. W. B. Roberts thought no time could be given for the comple-

tion of an operation for correcting irregularities ; considers we have more irregularities in this country than in any other.

Dr. Covil said irregularities were frequently traceable to hereditary causes, and the premature removal of the deciduous teeth, resulting in a contraction of the arch.

Dr. Assay, Philadelphia, has no system ; is governed by circumstances.

Dr. Goldey uses the inclined plane with good success ; usually succeeds in three or four days. To avoid periostitis, wash the mouth with tincture of myrrh.

Dr. Colburn, of Newark, N. J., had practised in the Sandwich Islands, where irregularities of the teeth were unknown ; the same was true of the natives of California and South America. Several other gentlemen spoke on the subject, after which the subject of "Diseased Dentine" was taken up.

Dr. Colburn had never met with a patient in the Sandwich Islands, suffering from diseased dentine, with the exception of those who have intermarried with the whites, and lived on American food; thought our wheat flour, as prepared for the table, contained so small a proportion of earthy phosphates, that the teeth did not receive proper nutrition. The natives of South America eat cornbread, containing a large quantity of phosphate of lime.

Dr. Dodge thought, while discussing the causes of diseased dentine, other things besides diet should be considered ; habits, amount of sleep, and other customs have their influences ; the teeth also sympathize with the stomach in its derangement.

Dr. Rogers referred to the galvanic action of different metallic substances upon the teeth ; has used gutta percha under fillings when the pulp was nearly exposed, and with good results.

Dr. Morgan, of Nashville, Tenn., gave a case of five exposed nerves ; cleaned the cavities, and treated the nerves with creosote. Six months after, he found that one molar had deposited a bony substance entirely covering the nerve. There was no sensibility in the deposit, though the rest of the tooth was sensitive. Thought there was bleeding from the pulp when he filled the teeth. Drs. Clark, Priest, and others spoke on this subject.

Dr. Rogers, of Utica, N. Y., offered the following resolutions :

*Whereas*, This convention has heard with profound sorrow of the death of Dr. Alvin Blakesley, of Utica, N. Y.,—therefore,

*Resolved*, That in the death of Dr. Blakesley, the profession has lost one of its oldest, most enthusiastic, skilful, and honored members ; one with whom it was ever our delight to meet and take counsel, and who was endowed with so many of the best qualities of mind and heart, that none knew him but to love him.

*Resolved*, That we hereby tender to the widow, children, and other friends of the deceased, our heartfelt sympathy in their affliction.

*Resolved*, That these resolutions be published with the proceedings of this convention, and a copy of them be forwarded to the widow of the deceased.

Several members spoke to the resolutions ; expressed their high appreciation of Dr. Blakesley's worth as a professional brother, gentleman, and friend.

The resolutions were unanimously adopted.

Fourth order, *Sensitive Dentine.*

Dr. B. W. Franklin said that if he should say the most in the shortest time, he should say, that the cause of sensitive dentine was *acid;* remedy, *alkali.* The sensitiveness of teeth was caused by acid proceeding from the decomposition of minute particles of food lodged under the free margin of the gum, and between the teeth. Litmus paper, placed in contact with points favorable for the retention of foreign matter, will show unmistakable evidence of the presence of acid. Gave a case of a patient, whose teeth, twenty-five years ago, were so badly decayed that they could not be filled, and although having been a confirmed dyspeptic all this time, decay had been arrested and the teeth retained, he believes, by the use of alkaline washes and powders. Considered the prevailing diet and habits of this country were injurious to health ; would suggest the free use of alkaline in cases of sensitive teeth.

Dr. Burras, of New York, referred to the molar teeth, and thought caries was caused by the action of putrefactive acid generated from particles of food in the indentations and fissures in the enamel of such teeth ; considered some teeth were more disposed to decay than others. Hereditary traits were also observable. Gave a case where one lateral incisor was wanting in the father, one in the first child, one in the second child, while both were present in the third child.

Dr. Colburn remarked, the acid theory was once adopted by him, but upon residing among the natives of the Sandwich Islands, his views had changed. They allow their food to ferment and become sour, yet their teeth remain sound.

Dr. Taft read an essay from Dr. Geo. F. Foot, Cincinnati, upon this subject. This essay has been published in several of the dental journals.

Dr. Priest, of Utica, N. Y., did not think we looked far enough back for the causes of caries. Considered it due to a want of life force, and that it was necessary for the child to receive proper elements of nutrition while in embryo as well as at a subsequent period.

Dr. Atkinson considered that sensitive dentine was frequently caused by want of harmony on the part of the patient and operator. Believed there were no nerves in the tubuli.

Adjourned.

### AFTERNOON SESSION.

Dr. Taft said, that if in excavating he exposed the pulp, he dries the cavity and places in it a temporary filling. In one half the cases there is a bony deposition that will protect and cover the pulp ; this is generally accomplished in two or three weeks, in some cases longer, and in others no change takes place. He removes the temporary filling, and if the pulp is covered, fills with gold, thus retaining it in a vital state. If there is a large cavity, or inflamed condition, considers the difficulties are greatly increased, and success is not certain. He usually selects his cases for this kind of treatment. Considered a dead tooth, however well filled, not worth half as much as a living one. The same principles of treatment are as applicable

to the pulp as to any other part, some calling for local, while others demand both constitutional and topical treatment.

Dr. Wescott, of Syracuse, remarked, that he had not met with success in the capping of exposed pulps, and had abandoned such treatment. Did not think a dead tooth would decay more readily than a living one, but considered it would be more subject to periostitis and other pathological conditions. Did not believe, if the lining membrane of the pulp was ruptured, it would be restored and covered by a bony deposit. He had never seen a single case of the pulp being protected by secondary dentine after exposure, and did not believe such a pulp could be restored to its normal condition. Had not for several years attempted to save a pulp after it was fully exposed. In his treatment of exposed pulps, discarded escharotics, if possible, and passed a broach into the canal and removed the pulp at once; in such cases fills the tooth immediately, and has never had a single case of alveolar abscess to follow; sometimes is obliged to treat the pulp, which he does in the following manner: Takes a small pledget of cotton moistened with creosote and a minute quantity of arsenious acid; applies this directly to the pulp; hermetically seals the cavity, inserting a temporary tinfoil filling. Can leave this application in the tooth three months without difficulty, and in removing it, is governed by the condition of the patient.

Dr. Dwinelle, of New York, would ask Dr. Wescott if he did not think the arsenic would pass through the tubuli and make an impression upon the periosteum, and eventually induce inflammatory action?

Dr. Wescott replied, that he used but a small quantity of arsenic, about half the size of a pin's head; in the majority of cases is perfectly successful. He always prefers to treat a tooth with an abscess while it is discharging.

Dr. Atkinson thought Dr. Wescott's practice a good one. Exposed pulps, when presented for treatment, are usually inflamed, and cannot be removed on once without an application, though he prefers to perform the "heroic" practice whenever practicable. Referred to the formation of secondary dentine in the teeth of aged persons.

Dr. Dwinelle said, in cases of exposed pulp he classified his patients,—in some filling over the pulp, but when inflamed, destroys them; where they are slightly exposed, treats with camphor or chloride of zinc, allowing it to remain a short time, fills the cavity, and cannot recall a single instance of failure. Considered one of the prominent offices of the pulp was to furnish secondary dentine, as its first office was to build the tooth. In treating exposed pulps, sometimes uses the arsenious pastes, but usually prefers the following practice: Dries out the cavity perfectly, applies a small portion of creosote, and with a new broach breaks up the attachment of the pulp in the canal. By this motion of the broach, promotes absorption of the creosote, and so continues the application of the creosote and broach until he reaches the apex of the fang; this method gives no pain. Thought a tooth much injured by a destruction of the pulp, and in many cases has left partially decayed dentine in the cavity

as a protection, which has been subsequently restored, the tooth and pulp remaining perfect.

Dr. Wetherbee spoke of the impracticability of trying to preserve exposed pulps, as they died in every case that he had attempted so to do. When he treats the pulp and fills the fang, alveolar abscess never occurs, but sometimes has this condition when the pulp dies. Remarked, that the secondary dentine which is found in the teeth of old persons takes fifteen or twenty years to be deposited.

Dr. Rogers had never known of a case where the pulp was wounded to be restored by the use of caps, or any other method. He thought if those gentlemen would open such teeth that had been treated by capping, and were claimed to be successful, they would find the pulp entirely dead. Thought if a tooth was properly treated and filled, it would be nearly as good as if the pulp was alive. He thought if a portion of arsenious acid was left in the tooth it would permeate the tubuli, making an impression on the periosteum, and the tooth would be eventually lost.

Dr. Wescott thought a portion of arsenious acid the size of a grain of sand could be used with impunity ; that it might be allowed to remain six months or a year, and he did not much care if it never was taken out.

Adjourned.

FOURTH DAY—MORNING SESSION.

The subject of "Exposed or Wounded Pulp" continued.

Dr. Clark, of Savannah, said he never attempted to save a pulp after exposure, but always treats and removes it ; compactly fills the pulp cavity ; when exposure occurs from excavation of dead bone, he removes the pulp with a broach and fills immediately ; when there is an inflamed condition, applies the arsenious paste. If the pulp is suppurating, or there is alveolar abscess, applies creosote, and restores the color by a preparation of chloride of lime, called in his State "Darby's Prophylactic Fluid ;" had used this with good success.

Dr. Morgan, of Nashville, does not always destroy exposed pulps ; believes that a tooth possessing vitality is far superior to a dead one. If he exposes a pulp in excavating, he bridges his filling, and has met with good success. After taking away the pulp fills the cavity with cotton, allowing it to remain ten days. Spoke of fang filling ; thought only one fang in ten was perfectly filled ; objected to the indiscriminate destruction of exposed pulps, alluding to several interesting cases.

Dr. Dwinelle had met with better success in capping, with young patients, and those in possession of a large amount of vitality. He treats inflamed pulps about to run into the suppurative stage, by ordering leeches to be applied locally and a dose of salts constitutionally. Thought sensation in dentine was due to the presence of what he termed a neurotic fluid in the tubuli, which transmitted sensation to the pulp. He spoke of, and disbelieved, Tome's theory of the presence of mere fibres in the dentinal tubuli ; thought discoloration of teeth was caused by a disintegration of blood corpuscles, the *hematine* permeating the dentinal tubuli with the *liquor*

*sanguineous;* treats such teeth with chloride of lime or soda ; has also used sulphate of lime.

Drs. Rogers, Stackpole, Allen, Dwinelle, Whiting, Taft, Merriman, Roderigues, and others entered into a conversational discussion of the subject.

Miscellaneous business being in order, Dr. Atkinson presented a paper upon dental teachings, of much interest. Dr. B. W. Franklin referred to a case of a gentleman of his acquaintance for whom two central incisors were transplanted with success, *the teeth being natural ones that had been imported in alcohol from France.* On being first introduced they gave considerable trouble, but after a few weeks became firm in the alveoli, and have for many years been doing good service, never having decayed or changed color. He also mentioned a case in his own practice, where the second inferior molar was extracted ; the dentes sapientia was filled, and at the suggestion of the patient the extracted tooth was placed in a vice, cleaned, filled, and reinstated in its original place in the jaw. For ten or twelve years the tooth was in a perfectly healthy condition. He mentioned these cases, hoping the gentlemen would explain upon what principle of nutrition these teeth derived their support, particularly in the first case.

Dr. Taft presented a model of a case under the treatment of Dr. Sutton, of Long Island, of great protrusion of the inferior jaw.

Dr. Perine presented a specimen of Paraffine, made from coal oil, used for taking impressions.

Dr. Roberts presented hard rubber corrundum wheels.

B. W. Franklin presented Drs. Assay & Son's method of attaching blocks of teeth to gold plates, by means of a thin layer of vulcanized rubber. The blocks are carved a little concave at their base, with pins or staples baked in the blocks, a few pins or staples are soldered to the plate, or, which is better, a narrow rim soldered around, and at a little distance from the block, with pins projecting into the space designed for the block to occupy. If pins are employed, they are to be bent to form hooks, and a thin sheet of prepared rubber is pressed between the plate and the block, and firmly secured and vulcanized. He spoke of the many advantages this method possessed over the ordinary mode of soldering.

Drs. Hayes and Brown, and B. F. Whitney, Buffalo, E. A. L. Roberts, New York, exhibited vulcanizers ; Archer and Ash, dental chairs. W. B. Roberts, and New York Tooth Company, exhibited teeth. Dr. Gidney exhibited some very beautiful teeth made by Ash, of London.

On motion, adjourned.

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## AMERICAN DENTAL ASSOCIATION.

We learn by the "Dental Cosmos" that this association met in Washington City, D. C., July 31st, 1860, in the hall of the Smythsonian Institute, and was called to order at half past twelve o'clock.

A committee of five was appointed by the chairman, Dr. Allport, of Chicago, to examine and report upon the credentials of delegates. Dr. Baker, Philadelphia, Clark, Fitch, Blake, and Hunt, constituted said committee.

AFTERNOON SESSION.

The Committee reported that the following gentlemen were duly elected delegates to this association :

*Washington City Dental Association.*—Drs. J. B. Gibbs and H. N. Wadsworth.

*Cincinnati Dental Association.*—Drs. J. Taft and H. R. Smith.

*Georgia Dental Association.*—Dr. F. Y. Clark.

*Mad River Valley Dental Society.*—Dr. W. A. Pease.

*Western Dental Society.*—Drs. W. W. Allport and A. Blake.

*Indiana Dental Association.*—Drs. S. B. Smith and P. G. C. Hunt.

*Kentucky State Dental Association.*—Drs. W. M. Rogers and A. S. Talbert.

*Pennsylvania Association of Dental Surgeons.*—Drs. S. Dillingham, J. H. McQuillen, J. F. Flagg, C. P. Fitch, D. McFarland, J. W. Van Osten, B. M. Gildea, and Geo. F. Barker.

*Pennsylvania College of Dental Surgery.*—Dr. J. L. Suesserott.

*Mississippi Valley Association.*—Dr. Wm. H. Atkinson.

A constitution was adopted. We have space only for the leading feature of the document.

ART. 2.—*Its Objects.*

The objects of this association shall be, to cultivate the science and art of Dentistry, and all its collateral branches ; to elevate and sustain the professional character of Dentists ; to promote among them mutual improvements, social intercourse, and good feeling ; and to *collectively represent and have cognizance of the common interests of the dental profession in every part of the United States.*

COMMITTEES.

The Committee on Prize Essays consists of five members.

The Committee on Dental Physiology and Dental Chemistry consists of three members.

The Committee on Dental Pathology and Surgery consists of five members.

The Committee on Mechanical Dentistry consists of five members.

The Committee on Dental Education and Dental Literature consists of three members.

A nominating Committee constitutes the list of Committees.

The following officers were elected :

For President, Dr. W. H. Atkinson, Cleveland, O. ; 1st Vice-President, Dr. J. B. Gibbs, Washington, D. C. ; 2d Vice-President, Dr. F. Y. Clark, Savannah, Ga. ; Recording Secretary, Dr. J. Taft, Cincinnati, O. ; Corresponding Secretary, Dr. W. Muir Rogers, Shelbyville, Kentucky.

This association adjourned to meet in the city of Cleveland, Ohio, on the last Tuesday in July, 1861, at 12 o'clock M.

# Communications.

PROVIDENCE, Sept. 28th, 1860.

DR. B. W. FRANKLIN :

*Dear Sir:*—We have been using your Vulcanite Base now about a year, and for perfect adaptation, strength, lightness, and the ease with which it is worn by our patients, we think it superior to any other substance used in the mounting of *whole sets* of artificial teeth. So far, the per-centage of failures and repairs has been very small indeed. Very respectfully yours, &c.,

HAWES BRO. & SEABURY.

UTICA, N. Y., Oct. 8th, 1860.

DR. B. W. FRANKLIN :

*Dear Sir:*—Although I commenced using the Vulcanite Base with slight misgivings as to its ultimate success, yet the experience of nearly a year has dispelled all doubts, and demonstrated its excellence and real utility. I recommend it with confidence to my patients, as possessing peculiar merit and advantage compared with other styles of work. Its ease of manipulation, compactness, the facility with which it is worn, extreme lightness, and its *positive cleanliness*, are most important points in its favor. There is no style of artificial work free from objections ; this must be included in the same category. But there are fewer objections to it than to any work with which I am acquainted. As regards repairing, I can hardly speak practically, for in thirty-nine different pieces such remarkable success has attended every one that I have not to record a single failure in any particular ; consequently no repair. I often use it as an adjunct to Continuous Gum, inserting a full upper Vulcanite, with a full lower Continuous Gum case, the weight of the latter being of great advantage in many mouths, besides more economical for the patient. Finally, I deem it a mode essential to the complete practice of Artificial Dentistry, inferior only to Continuous Gum, fully equal, and in frequent cases superior, to a Gold Base. I should not regard my own practice complete without it, nor could I, with my present experiences, possibly do without it. Yours truly,

G. A. FOSTER.

UTICA, Oct. 9th, 1860.

DR. G. A. FOSTER :

*Dear Sir:*—It affords me great pleasure to be able to state, as I now do, in compliance with your wish, my belief in the great

superiority of the Vulcanite, or Vulcanized Rubber, for the setting of artificial teeth, over gold or any other substance with which I am acquainted. I have use plates of both the above-mentioned articles of your manufacture, and greatly prefer the Vulcanite. It is lighter, and more easily kept clean and sweet, and is entirely destitute of taste or smell. I am very truly yours,

N. H. Dering, M. D.

Buffalo, Oct. 1st, 1860.

Dr. B. W. Franklin :

*Dear Sir :*—I will state that I have been using the Vulcanite Base one year and a half. Fully one-fourth, perhaps one-third, of my artificial work has been mounted on that material. There has been no case of failure or breakage in the work made by myself ; and, without attempting to decide its merits, as compared with Gold Plate work skilfully executed, I can say that it is a very important addition to Dental resources ; one, in fact, which I should not like to dispense with. Respectfully, &c.

Geo. E. Hayes.

Carrollton, Miss., Sept. 28th, 1860.

Dr. B. W. Franklin :

*Dear Sir :*—I am delighted with the Vulcanite or Hard Rubber Base to Artificial Teeth. Delighted because my patients are all so well pleased with the comfort they enjoy in wearing teeth mounted on the Hard Rubber Base. That last hint you gave me, to vulcanize under water, is a good thing ; also, the use of alcohol to bring out the color, I prize most highly. Whenever I can have the time, I keep the piece immersed in alcohol, in the sunshine, two and three days. It matters not how dark, it will bring it out to a beautiful bright gum color. When the patients live at a good distance, and cannot wait, I fill a half-pint bottle with alcohol for them, and direct them how to use it. Very respectfully,

J. B. McClure.

Oswego, N. Y., Oct. 1st, 1860.

Dr. B. W. Franklin :

*Dear Sir :*—I use the Vulcanite Base almost exclusively. I am very much pleased with it. Sets of teeth inserted on it are lighter, stronger, less offensive when being worn, and can be made to fit more accurately than any other style of work. By its use the operator is also enabled to give those definite proportions so essential to the beauty and form of the human face. Very respectfully yours,

D. S. Goldey.

CINCINNATI, O., Sept. 27th, 1860.

DR. B. W. FRANKLIN :

*Dear Sir :*—I have now been using the Vulcanite Base with most satisfactory results for over sixteen months, during which time I have put up many cases, all of which (as far as I know) are doing well, and giving entire satisfaction. Those who have formerly worn metallic plates are particularly pleased with the exchange ; and there seems to be but one expression among my patients, and that is in favor of the Vulcanite. As to failures or repairs, I have *never had a failure*, or a piece returned on my hands. In the early use of it, I had to rebuild some pieces, from want of experience and bad manipulations. I have never had a breakage or a piece of my own work to repair, excepting for my own mouth, where the pins of a single tooth were deficient, and it had to be replaced by another. I have repaired two other cases of broken teeth without the least difficulty. I have myself worn a partial set for over a year, which fulfils all the uses sought for by an artificial denture, and remains as perfect as when first made. I am in frequent communication with many other Dentists in the West using the Vulcanite Base, most of whom are warm in their expressions in favor of it. Indeed, I hear no complaints except from those who use it without a license, and who consequently use other than the American Hard Rubber Co.'s gums. From my experience as to its practical workings in my own mouth and that of many others, I unhesitatingly give it the preference over all other materials yet known to the profession as a base for Dental substitutes. Respectfully, &c.,

GEO. F. FOOTE.

P. S.—I like the strips you sent me for polishing teeth very much, but would prefer it in lengths, suitable for a tape-holder.

GEO. F. FOOTE.

NEW YORK, Oct. 1st, 1860.

DR. B. W. FRANKLIN :

*Dear Sir :*—It is now some two years since I first introduced in my practice the Vulcanite, or Indurated Rubber, as a base for Artificial Teeth, and can now most confidently say that its adaptability and durability for such purposes are beyond cavilling. I have almost daily opportunities of seeing some of the first cases I introduced, and cannot perceive the least change in the material ; and the patients themselves express their preference for this style of base, especially those who have heretofore worn Gold and Silver Plates, with clasps or springs. I am very happy to perceive our manufacturers are giving more attention to the Teeth made for this special

style and material, and great competition appears to exist as to who makes the best *Teeth* particularly adapted to the Vulcanite Base.

Respectfully yours, &c.,

T. H. Burras,

48 Great Jones St.

Baltimore, Md., Oct. 1st, 1860.

Dr. B. W. Franklin:

*Dear Sir:*—You ask me how long I have used the Vulcanite, and how it compares with gold. I can make no comparison; certainly none with gold work, a knowledge of which forms the basis of a dentist's mechanical education. The Vulcanite requires for its success no such position of antagonism, possessing, as it does, characteristic merits found in no other work as yet known. I have used it for two years and a half, and cannot in that time detect any material wear or change. Hence, with increasing confidence, I recommend a style of work peculiarly satisfactory to my patients. The work is destined to be very generally adopted. Many will bring discredit upon it, because they will fail to apply to it that skill and accurate manipulation which, more than any work I know, it requires.

But those who will take the pains to develop the excellencies of the Vulcanite, will feel with myself, that to do without it is—impossible. Very respectfully yours,

P. H. Austen.

Bloomington, Ill., Sept. 29th, 1860.

Dr. B. W. Franklin:

*Dear Sir:*—Your letter of the 24th is received, asking my opinion of the utility of the Vulcanite Base, compared with other styles of work; also the length of time I have employed it in my practice, the success I have met with, and the per-centage of repairs and failures, etc.

1st. In reference to the utility, I have to say that perfect adaptation to the gums, the certainty with which the fit can be obtained, the ease with which the work can be made, the lightness of the work, its superior strength, its elasticity allowing it to yield about as much as the natural teeth yield in their sockets without the least danger of breaking, the absence of all joints and crevices for the retention of food, being equal in this respect to Continuous Gum, the ease and comfort afforded to persons wearing it by its approximation in feeling to the mouth itself, the total absence of all taste and smell, the trifling expense incurred in doing the work, and lastly, the impossibility of galvanic action in the mouth which is liable to be produced by metallic plates, thereby decomposing the

fluid of the mouth, and thus producing derangement and injurious consequences in the process of digestion, constitute the leading features of its usefulness.

2d. I have used the Vulcanite since last March, and have made during that time all varieties of partial and full sets to a large extent, having made partial sets both with and without clasps, and have not yet met with a case in which the rubber was not practicable; and in fact, I cannot call to mind a case in which it cannot be used with perfect success. I have yet to meet with a failure of any kind, and have the first repair yet to make. I have the testimony of quite a number of very reliable persons who have worn silver, gold, and platina, and their evidence is all greatly in favor of the rubber. I have also had opportunities of seeing nearly all of those for whom I have made this kind of work, and, without a single exception, they express themselves in the most satisfactory terms.

Very respectfully, J. Paine.

Ogdensburgh, N. Y., Oct. 1st, 1860.

Dr. B. W. Franklin:

*Dear Sir:*—Yours, asking my written opinion of the Vulcanite, is received. I have used the hard rubber for nearly four years, during which time I have made over four hundred plates, and with the greatest success. The per-centage of repairs compared with other plates is almost nothing; indeed, I have not had one rubber plate give way. From its uniform success in my hands, and the universal satisfaction it has given my patients, together with the severe tests to which I have submitted it, I do most unhesitatingly give it as my opinion that it is better adapted for plates than anything else, not excepting gold or platina. Yours most truly,

S. S. Blodgett.

Hartford, Ct., Oct. 12th, 1860.

Dr. B. W. Franklin:

*Dear Sir:*—In reply to yours of September 24th, asking my opinion in regard to the practical utility of the Vulcanite Base for artificial teeth, I will say I have used it for two years and a half with great satisfaction, and hesitate not to say, with better success than I ever had with gold or any other material. I have mounted some one hundred and twenty full sets of teeth upon the rubber, and, as far as I know, they have in most cases given entire satisfaction.

"The per-centage of repairs compared with gold or other material." I have had but five sets to repair, (and these being some of my first cases, were probably imperfectly made,) which, I am sure, is a much smaller per-centage than would have occurred with gold plates, or

any other style of work with which I am acquainted. In many cases, where an upper or under set of teeth is needed, I consider the Rubber or Vulcanite Base as possessing advantages which cannot be found in any other known material; and so long as it continues to give the satisfaction to my patrons and myself it now does, I shall continue its use. Respectfully yours,

E. E. Crofoot.

Rochester, N. Y., Sept. 26th, 1860.

Dr. B. W. Franklin:

*Dear Sir:*—I received your letter this forenoon, requesting me to give you my opinion of the Vulcanite Base for artificial teeth. I have not time to say half I would be glad to in its favor, as it has more good qualities than I am able to record on paper. After a practice of more than twenty years in dentistry, I have come to this conclusion, that there is no material used as a base for artificial teeth, but we can find more or less objections to. But, after using the Vulcanite Base for three years and a half, I can say without the least hesitation, it has the least objection of any. While it may have imperfections, it has many qualities that far outshine all other kinds of work—to the operator a great saving of hard labor, and to the patient a very great increase of comfort. For the last two years I have not made more than one or two metal plates, but have taken, in exchange for rubber sets, any quantity of gold plates, and have made over most of the Continuous Gum sets that I have made heretofore, with the most satisfactory results. The expense of keeping it in repair is not one-fourth that of other work. I fully believe in a few years more (in this region of country) it will be as difficult to find a metallic plate in the mouth, as it was four years since to find one of hard rubber. I am well aware that, like other kinds of work, it will in some cases fall into the hands of inexperienced operators, and be called a failure; but when it fails in the hands of one who understands fully the science of putting it up, I shall think it time to find something better. Yours in haste,

E. F. Wilson.

Cincinnati, O., Sept. 27th, 1860.

Dr. B. W. Franklin:—

*Dear Sir:*—Doubts are often expressed about the possibility of repairing the Vulcanite Base. I have succeeded to my entire satisfaction in replacing teeth that have been fractured, by the following plan, viz: Remove the fragments of the tooth with care, so as not to deface the base. Grind and fit in another tooth, and if possible give it a bearing against some point. Bend the pins short, and give ample

space for them with a drill, and with a drill make small latteral holes into the base, to give the new gum anchorage. Serape and thoroughly clean the part to be covered with new gum. Apply the gum in abundanee, and, after heating the tooth, press it home to its bearing. The gum readily yields to the hot tooth, which ean be adjusted and held in position for a few moments, until the parts are sufficiently cooled to hold it inside, when the whole should be enveloped in plaster and vuleanized. After which remove the surplus gum, polish, and bleach in the sun. Respectfully yours,

Geo. F. Foote.

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## TO THE DENTAL PROFESSION.

In the September No., 1860, of the *The Dental Register of the West*, we find the following, under the head of business notices : "In the last number of the 'Vuleanite' appears an artiele endorsed by the 'American Hard Rubber Company.' So apparently weak a subterfuge for argument is scareely worth noticing, but, as many of the profession still seem in doubt as to the validity of these *pretenders' claims*, I suppose I must at least expose the sophistry of the article, which I will do in the next number of the Register." "A little, and yet a little while !" This promise we presume Mr. Toland considers himself to have kept in the October number of the *Register*. Instead, however, of an exposure of our so-called "sophistry," we find the article referred to mainly devoted to attempts to east doubts over the truth of our *plain and unequivocal statement of facts*, by mere groundless insinuations, coupled with at least *one* gross garbling of extracts from our artiele in the August number of the *Vulcanite*, and no small amount of irrelevant matter. Of what practical importance to the Dental Profession ean it be to know whether "Mr. Ropes," or some other "long-headed" individual, wrote the article in question? whether, as charged, Mr. Dieffenbaeh "deserted his wife, associated with women of easy virtue, and went to Europe with a young woman, leaving his family destitute ?" Or what light does Mr. Toland throw upon the question at issue between us, by leaving off the latter part of the sentence in which we claim that the "Goodyear Patents cover all the vulcanizable compounds *which have yet been offered to the public for dental purposes*," and answering it as if it had been quoted complete ? Sueh aetion, we submit, is not throwing *dust* merely, but the filthiest kind of *mud*, into the eyes of the readers of the *Register*. Again : Mr. Toland asserts that Mr. Roberts paid $100 only, for *costs* and damages, in the suit

against him, and received a receipt in full. This is either a deliberate falsehood, or Mr. Toland testifies to a matter of which he knows nothing. So, in regard to Mr. Roberts continuing to vulcanize: we believe there is not the least foundation for the assertion, and that ever since the settlement of our suit, Mr. Roberts, like a good citizen, has paid due regard to the *injunction of the Supreme Court of the United States*, which is still resting upon him. As to our selling him gum, and buying his heaters, all we have to say is, that Mr. Roberts keeps a Dental Dépôt, and manufactures heaters. We have sold him some gum, to be furnished to such of our licensees as find it more convenient to order of him than of ourselves; and when we have orders for his heaters, we buy them for our customers. We have no personal hostility to Mr. Roberts, nor any others who *have been*, or *are* infringing on our rights. Even Mr. Toland's name appears in our advertising columns every quarter, and we fully expect that, after the United States Court has whipped him into paying a due regard to the rights of his neighbors, *he* will occupy as "loving" a relation to the American Hard Rubber Company, as that in which he represents Mr. Roberts. Mr. Toland sneers at the $100 paid by Mr. Roberts, as a sum almost too paltry to be mentioned. It may appear so to a man who has made "his pile" by selling gum at $14 00 per lb., but *we* have found dentists generally too poor to squander money on Law-suits, and have advised them therefore to pay their $100 where it will secure them from all liability to such suits. Our charge of selfishness causes Mr. Toland to hold up his hands with a kind of holy horror; and, after advertising for months that he will do vulcanizing for the profession, and having a considerable run of custom in that direction, he now pretends to "do a piece occasionally only, for some one who wishes to purchase a heater." That "dodge," Mr. Toland, is hardly "artful" enough to pass muster. Let us look a little into this matter of Mr. Toland's "selfishness," by the light of his own record of the past. The first reference we find made by him to the use of "vulcanite" for dental purposes, is contained in the *Dental Reporter*, for the month of August, 1858. His notice of it was quite favorable, and closed with the following language: "There are doubtless a great many who would be pleased to experiment in the work, but the large outlay for apparatus and materials to begin with, restrains them, especially in view of the fact that, as yet, *the owners of the patent* have manifested no disposition to place the matter before the profession in a satisfactory way. This is probably owing to the fact, that the patent held by Mr. Goodyear will soon expire. He is, as we understand, endeavoring to have the patent renewed, and pre-

fers to take no measures for its general introduction until that shall have been accomplished ; therefore, any person going into this work must be subject to a doubtful contingency. If the patent is not renewed, then of course the process will be open and free to all ; if the patent is renewed, *then those using it must either abandon it, or be subject to any tax the patentee may choose to levy.* The patent on the material is, therefore, at present, a bar to its use. Those who wish to experiment before this matter is decided, can only do so, economically, by sending their work to New York to be vulcanized, which can be done at an expense of five dollars for each piece, two dollars extra for polishing, as will be seen by advertisements in several Dental periodicals. *We think the patentees are pursuing a wrong policy in attempting to make the entire profession tributary to a few offices in New York*, and we trust all will join in *demanding* a fair and liberal arrangement, so that those in the country can have the same privileges and advantages with those in Eastern cities." "By the present arrangement the India Rubber Company receive a per centage on each piece that is vulcanized."

Similar opinions to the above having been expressed by others, we decided to establish heaters for vulcanizing, in different parts of the country, and commenced the sale of Office rights and apparatus, on terms which, it must be confessed, were of a *liberal* character. About the same time, Christopher & Co., of Bond St., New York, established a heater, and commenced infringing upon the Goodyear Patents, by vulcanizing a hard compound of Gutta Percha and Sulphur, under the name of "CORALITE." A suit was commenced against them by Mr. Goodyear, whereupon they sold out to Mr. E. A. L. Roberts, and left the city. The history of the suit with Mr. Roberts is too familiar to our readers to need repeating here. We refer to it only for the purpose of showing the part acted by Mr. Toland in reference to it. With the exception of an erroneous statement respecting a withdrawal of the motion for an injunction by the counsel for Mr. Goodyear, made in the July number of the *Register*, and which we *know* did not originate with Mr. Toland, we find nothing from his pen respecting the Goodyear Patents, until October, 1859, when the following appeared in the *Register:* "Vulcanite *vs.* Coralite. *The difference between these is about the same as that between tweedle-dee and tweedle-dum.* One is made of India rubber, the other of Gutta Percha ; the result so near alike, that few can distinguish the difference. We have concluded to let them

"Fight dog, fight bear,
There's no dog of ours there."

The suit with Mr. Roberts terminated in an injunction issued against him by the Supreme Court, to which Mr. Toland refers in the December number, 1859, of the *Register*, as follows: "Decision of the Hard Rubber Contest. By reference to a card in the advertising sheet of the present number of the *Register*, it will be seen that in the suit of the Hard Rubber Co. *vs.* E. A. L. Roberts, for infringement of Patent Right, has been decided, granting the injunction. An order of investigation has been issued in regard to the amount of work done by the defendant, and an order for the amount of profits upon the same, to be paid by the defendant to the plaintiff.

"In regard to the details of the matter, we know nothing more than is stated in the circular. *This decision will probably bring the indiscriminate use of this process to a check.* There may be developments that will change the aspect of affairs in future; of this, however, we know nothing. *Those who wish to avoid difficulty, should regard the rights of others.*"

This shows a disposition on the part of Mr. Toland to perform the duty of an impartial Journalist, wielding an influence which he well knew would be felt by thousands of dentists, in deciding the question whether they should *respect* or *disregard* the Patents involved in this controversy. Before long, however, a change seems to have come over the spirit of his dream, as shown by the following, taken from the January number of the *Register:*

"The Question Settled. Goodyear *vs.* Roberts. A circular bearing the above caption having been sent to every dentist in the United States, whose address is known to the American Hard Rubber Agency, at 640 Broadway, N. Y., and a copy of the same having appeared in the December number of the *Register*, I need not state the contents.

"It is possible that this case was thoroughly and manfully contested, but I must confess that the verdict *smells* a little *fishy.* The urgency which is manifested to sell rights, immediately accompanied by a sweeping threat against all who do not *bow before the throne*, does not savor much as if coming from parties feeling secure of their position. To the American Hard Rubber Company, it would indeed be a *Good*-year, if, through a *Rob*-erts, they are enabled to compel every practising dentist in the land to pay tribute to them.

"I have taken some steps to investigate this matter, and see whether or not there is a 'nigger in the wood-pile,' and may be able to say something more in our February issue.

"As agents are now travelling for the sale of rights, it would be as well for the profession to bear in mind, that these patents have only

about five years of unexpired time. If they persist in spending their money in this way, it is no fault of mine." And again: "Dental patents are still in the field, and the profession continue to snatch at them like the hungry fish at a bait, without thinking of the barbed hook until they find it sticking in their gills. I have on previous occasions had the satisfaction of suppressing some of these *piratical humbugs*, saving to the profession a large amount of money, at a great *sacrifice* of my own *cash*, *time*, *and labor*. I have also proposed means to investigate and control these things as they make their appearance. Some of the profession have evinced a laudable appreciation of the *service rendered them;* but it does not require any extraordinary penetration to discover, that the great body of the profession are so fond of being sold with their own money, that it would seem to be a pity to come in and dispel their happy illusion." This change in Mr. Toland's tone took us quite by surprise; but, on turning over a few pages more of the *Register*, we found the cause. During the month of December, a new luminary had arisen in the horizon of the Dental World, whose light, clear as "*amber*," was destined to eclipse the waning glories of that vile compound of "india-rubber, sulphur, and mercury," called "*Vulcanite*." "Emitting no odor—tasteless—made without sulphur—stronger and more durable than rubber—cheaper at $14 00 per lb. than Vulcanite at $3 00—covered by four "Patents" under which the owner was "prepared to protect, save harmless, and defend all purchasers of licenses, rights, or of the Amber composition, by reason of their purchasing, selling, mixing, hardening, coloring, wearing, or otherwise using the same," it was just the thing to engage the attention, and enlist the newly-born *philanthropic* energies of Mr. Toland, against the "*threatening*, *bullying*, *humbugging*, *blackmailing* agents for the sale of Vulcanite." Accordingly we find him advertised as the "*Western Agent*" for Dr. Dieffenbach's Amber Base, and that at his office, No. 38 W. 4th St. might be found this immaculate compound, at $14 00 per lb., "*in packages of not less than* $\frac{1}{2}$ *lb.*" Now we will not assert that there is any thing "fishy" in all this, nor that there is a "nigger" concealed in this immense "wood-pile" of Dr. Dieffenbach's; but *we do say* that the course pursued by Mr. Toland since he accepted that agency, has been one well calculated to lead those who placed confidence in his judgment, into a *reckless disregard* of patents, the validity of which he had not a shadow of reason to question; and the infringement of which he well knew would involve those using them in serious consequences. We say further, that we find a sufficient reason for this course in the *large profits* on a portion of the material sold by Mr. Toland to infringers,

and the still larger *aggregate* profits realized by sales of heaters and other apparatus ; the use of which, in the section of country immediately under the influence of Mr. Toland, has been vastly increased by the idea held out by him, *that they could be used without the purchase of a license.* We charge also, that since January, 1860, Mr. Toland has not repeated in his Journal *one word* of the caution which he uttered as to the infringements on patents, previous to that date, *except* in regard to the use of *particular gums, which might interfere with the sale of his* $14 00 *per lb. Amber Base ;* and that in *such* cases, his motives were too apparent to be mistaken. Witness the article in the March number, 1860, of the *Register*, from which we make the following extracts : "I am daily in receipt of letters, (sometimes a dozen a day,) making inquiry as to the kind of apparatus used for vulcanite, coralite, and amber bases, and whether either can be used without a right or license. In reply to all inquirers, let me say, I will give you all the facts as nearly as I am possessed of them, and let you judge for yourselves. If any errors of fact, or any erroneous deductions are made, it will be my greatest pleasure to correct them on satisfactory information. Let the American Hard Rubber Company speak out, and inform the profession precisely what their patent does and does not cover, how far material can be manufactured, bought and sold, or used and vulcanized—where their rights begin, and where they end.

"*A patent is in itself presumptive evidence of its validity, until legally contested, and proved to be invalid.* The American Hard Rubber Company have two patents, reissued May 18, 1858, which expire May 6, 1865,—one for the hard product, or compound of India Rubber and allied gums; the other for the process for producing the said product or substances. They also obtained an injunction against Roberts for compounding and vending materials, and a verdict for damages. *This strengthens the presumptive validity of their patent.* It is, therefore, clear that only one of two courses can be pursued, by those who wish to use the process and materials. *The first, to purchase a license, and with it the privilege to purchase their material at three dollars per pound.* The other is, to go to work without a license, *and purchase materials at higher prices*, viz : *five, eight, ten, or fourteen dollars* per pound, and take the risk of prosecution. Whether they will be prosecuted, will depend on three things :

"1st. Whether it becomes known to the Hard Rubber Company, that the person is vulcanizing, and whether they feel satisfied that they can prove an infringement.

"2nd. Whether the person vulcanizing becomes an obstacle to the American Hard Rubber Company, in the sale of licenses.

"3rd. Whether the person is sufficiently responsible to have costs and damages, or either, collected from him."

Now, all this appears very fair towards the American Hard Rubber Company; but we proceed to the next page, and find the following:

"The AMBER BASE comes next, and claims *special* attention:

"1st. By reason of the *color*, thereby being enabled so closely to represent the natural flesh-color, that gum teeth are not required, but *plain teeth* only are used.

"2nd. Being tasteless and free from odor, *it is free from the objections frequently urged against the Vulcanite base*, viz: *the disagreeable taste and odor arising from the combination of sulphur and India rubber.*

"3rd. It is covered by four *distinct patents*, numbered and dated as follows:—No. 19,916, April 13th, 1858; No. 24,544, June 28th, 1859; No. 24,545, June 28th, 1859; and No. 25,957, November, 1st, 1859. It will be seen that all, except the first, have been issued subsequent to the reissue of the Goodyear patent, and these cover every part of the process, viz: the compounding of materials, the use of *plaster moulds*, and process of curing or hardening, or what is generally termed *vulcanizing, either by steam or any other kind of heat.* These patents must occupy precisely the same position as all others, viz: that the *patent is*, in itself, *presumptive evidence* of its *validity.* Why do the American Hard Rubber Company not contest the validity of these patents? Dr. Dieffenbach has, by circular and advertisements, *challenged* them to a *legal investigation.*

"They probably reply that they do not claim, *broadly*, the manufacture of materials, but the constructing of plates or artificial denture therefrom. The fact is, as before stated, they have two patents, one for the *substance*, the other for the *process.* It is fair to infer that, if they cannot claim *broadly* the *process*, they cannot, on the same principle, claim *broadly* the *substance* obtained by the said process.

"*Those who purchase the Amber compound, have a right to use it free from any tax or license.* Those who wish the *exclusive* use for cities, counties, and States, will have to purchase rights."

Can any one fail to see that the *former* part of that article was written for the purpose of strengthening the positions taken in the

*latter* part, and that, under guise of an apparent regard for Patent rights, Mr. Toland was only endeavoring to *change the course of trade* from an *exploded* material to a new one, in the sale of which he had a large interest? And here we wish to say a few words in regard to the Plaster Moulds Patent, so called. Mr. Toland claims that one of Dr. Dieffenbach's Patents is for the use of such moulds, in the vulcanizing process, when the fact is, *he has no such patent.* Mr. Goodyear's Patent is for the use of Plaster, or other porous material, for confining India Rubber whilst undergoing the vulcanizing process, and is *indispensable* to the vulcanization of *all* gums for Dental purposes. *All of our licensees have the right to use it without charge;* all others who use it, are infringers on both patents. But to return to Mr. Toland. We left him in March, evidently satisfied with the very clever turn he had given to the public mind in favor of Amber Base. His equanimity of temper was, however, destined to be of short duration. Within one month, yielding to the pressure of the suit which had been commenced against him, Dr. Dieffenbach followed in the steps of Mr. Roberts, publicly acknowledged the validity of the patents of Mr. Goodyear, and gave notice to the profession that *the vulcanization of Amber Base, or its use afterwards, was an infringement on those Patents.* This was a severe blow to the "Western Agent." One of two courses he must now follow; either to inform his customers of the facts in the case, and advise them to purchase licenses, which must necessarily greatly reduce his business, or, *entirely repudiating the Patents*, bid defiance to those who claimed the ownership of them. Unfortunately, as we believe, for his friends, he chose the latter course, and in the June No. of the *Register*, he "pitches in" to the Goodyear Patents, the American Hard Rubber Company, Drs. Roberts, Dieffenbach, and Franklin, striking indiscriminately both friends and foes, in his blind rage, upsetting all he had said in the March No. respecting the settlement with Roberts, trying to keep up the market for "Amber Base" by denouncing the Hard Rubber Company's Gum as a "Nostrum," and finally, winding up by attacking the validity of the Patents, on the ground *that they are covered by other and prior ones.* "There have been," says Mr. Toland, "twenty or twenty-five different patents issued since 1843. In Europe there have probably been issued as many more. Will any one pretend to say that *one* of these is *valid,* (and swallows up all the rest,) and that all others are worthless? Is it to be presumed that the United States Commissioner of patents is a fool; that he—whose duty it is to be informed, and having all the facilities of information, by reference to Court Records, and consultation with the Attorney General of the United

States, and especially on a subject which has been constantly in discussion and litigation—that he should issue patent after patent, (many of them prior to those of Nelson Goodyear,) and yet all invalid, except his alone? It certainly seems that 'a little learning is a dangerous thing.'" And this is the kind of logic on which Mr. Toland relies for the overthrow of the Goodyear Patents. "A little learning," Mr. Toland, "*is* a *dangerous* thing," *but a total want of discernment* may, sometimes, prove *fatal*. *Can't* you see, sir, that what you have put forth as an argument *against* the validity of the Goodyear Patents, is one of the strongest which can be made in their favor? If either of the American or English Patents, referred to by you, *had* covered, or even *described* the improvement patented by Nelson Goodyear, *the Commissioner of Patents would have refused his application*. Mr. Toland raises a great hue and cry about our claiming more than the Goodyear Patents grant, and declares that all his opposition to us *has been based upon that fact*. The absurdity of this declaration is apparent upon its very face. It is true, we did, in the May No. of the Vulcanite, in referring to the Goodyear Patents, state, that they "covered all vulcanizable compounds," but, as we had in a preceding part of the same article in which this remark was made, published in full the claims to both of the Goodyear Patents, *for the purpose of showing the extent of our rights*, it is absurd to suppose that we intended any thing more by our expression than was warranted by the Patents themselves. But, suppose we *did* intend something more than this, what harm has or could have resulted to the Profession from such a claim? We had distinctly stated to them, that *all the compounds then in the market for Dental purposes*, including Amber Base, contained the proportions of ingredients described by Nelson Goodyear, and warned them against using them *for that reason*. Could Mr. Toland have shown that any of them were *not* compounded according to his specifications, and that we still claimed them to be covered by his Patents, there would have been some sense in the cry which he raised; but when he not only *declines* making any such claim, but also advertises to vulcanize for the profession the "*American Hard Rubber Company's Gum*," and that, too, *at a less price than any other*, he shows, clearly, that all his claims about "contest for Principle," "protecting the rights of the Profession," "claims beyond the grants of the government," &c., are made solely for the purpose of drawing off attention from his true motives in carrying on these attacks against us. We are credibly informed, that his business has more than quadrupled during the past year. A large part of the increase, undoubtedly, is owing to the idea held out by him,

that *his heaters and gums could be used without license from us.* His profits have, of course, been correspondingly great. So much for the "disinterestedness" of Mr. Toland.

Now, a few words to those who have yielded to his influence, and infringed upon our rights: You have placed confidence in Mr. Toland's statements, that you could use your gum and heaters without license; but have you learned from him any good ground on which you can defend yourselves, when called upon by us to account for your infringements? If so, all may be well; you will soon have an opportunity of showing what those grounds are. The present number of the Vulcanite contains statements from the best authorities in the country, showing the great value of Mr. Goodyear's invention to the Dental Profession. You cannot expect us to sit still and see you appropriate these rights to your own use, without an *attempt*, at least, on our part, to obtain payment therefor. We have delayed action against you, partly because we knew what a large amount of influence was exerted over you by Mr. Toland and others, and we have felt that a greater share of blame for your course should attach to him than to you. We feel now, however, that we have performed towards you more than our duty, and that we shall, hereafter, be justified in regarding those of you who continue your infringements, in the same light we do Mr. Toland. We presume you understand the law of damages for infringements on Patents: they are based upon the amount realized from their use, *and a claim for infringement is not outlawed during the existence of the Patent.*

You will perceive from this, that delay on our part in the prosecution of our claims is of no pecuniary importance to us; the longer the time of an infringement, the greater the amount of damages awarded, and each infringer is obliged to render, under oath, a statement of the amount of work done by him.

A few words to Mr. Toland, and we have done. You have, without just cause, used your great influence through your widely circulating journal, to destroy our rights and deprive us of our property. In defending those rights, and endeavoring to protect that property, we have employed talent which, though confessedly inferior to your own in certain directions, we thought would answer for the occasion. You sought to know who had represented us in the pages of the Vulcanite, and you think you, at last, "know the Ropes." We trust the acquaintance may prove to have been a profitable one to you. But, however this may be, we would venture to remind you, that the course you have pursued, in regard to our rights, may have a *tendency* to bring you in contact with "Ropes" composed of a certain "western element," whose acquaintance, though likely to

be more *elevating*, may, on the whole, prove *less pleasing* than that of the "Ropes" you *suppose* to represent the

AMERICAN HARD RUBBER COMPANY.

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## Selected.

From "The New York Dental Journal."

### THE HARRIS TESTIMONIAL FUND.

Pursuant to a call, a meeting of the Dentists of New York and vicinity took place at the rooms of Messrs. Jones & White, (which were kindly offered for the occasion,) on Monday evening, Oct. 8th, at 8 o'clock.

On motion of Dr. *John Allen*, Dr. Eleazer Parmly was called to the chair, and Dr. Solyman Brown appointed Secretary,—when the Chairman proceeded to make the following remarks in reference to the sad occasion that had called them together.

"Gentlemen of the Dental Profession :—I am glad to see so large a number brought together on this occasion ; and permit me, first, to thank you for the honor you have done me, and for your friendly consideration, in selecting me to preside at this meeting. There is, perhaps, no one present who has had the same opportunity of knowing the deceased that I have had. My long acquaintance with Dr. Harris in the societies to which we belonged, and my more intimate connection with him in the Baltimore College of Dental Surgery, while I held the office of Provost in that institution, enable me to say, with truth, that I have never known a man of more generous impulses, or more genial feelings, than he whose death has awakened our sympathies, and brought so many of his professional brethren together to express their high respect for his professional character, their admiration of his attainments, and their exalted esteem for his moral, social, and personal worth.

"As one to whom he was long known and endeared by the many virtues that adorned his character, I trust it will not be deemed unbecoming in me to give this testimony concerning one who has labored more arduously as a practitioner, more untiringly as a writer, and more devotedly as a teacher of the Principles and Practice of Dental Surgery, than any person who has, in any way or in any country, ever been connected with our professional art.

"In his domestic relations, Dr. Harris was exceedingly happy. His home was one of the most hospitable and delightful that I have ever

known. His house and his heart were always open to all those who approached him with the remotest claim upon his benevolence and bounty, with a widely extended philanthropy."

On motion, the Chair appointed a Committee of three to draft a series of resolutions expressive of the feelings of this meeting on the present occasion. Drs. Ambler, Brown, and Foster were appointed.

While the Committee were absent, the Chair suggested that the gentlemen present should all sign the original call for the meeting, and remarked that there were already more names appended to it than there were dentists in the United States when he first commenced practice, in 1815.

The Committee returned, and reported a Preamble and Resolutions. On motion, the report was accepted by the meeting, and the Committee dismissed.

On motion, the meeting proceeded to take up the resolutions *seriatim*, and Nos. 1, 2, 3, and 4 were adopted without dissent. Considerable debate followed the reading of the fifth resolution, and various suggestions and amendments were offered by different gentlemen present. The resolution, amended by Dr. Rich so as to change the number of the Committee from twenty to three, was finally adopted by the meeting. The other resolutions were then read and adopted, when, on motion, the report as amended was adopted as a whole, as follows :—

PREAMBLE.

Every distinct profession in human society has its leading members, men of energy, talent, and eminence. This is as true of the Dental profession as of any other, and not less true in America than in other quarters of the globe.

The names of Greenwood, Wooffendale, Gardette, Hayden, Flagg, Hudson, Koecker, and Randall, among others that have left their sublunary labors, are evidences of this fact.

It has become our melancholy duty, in pursuance of the objects of this meeting, to add another name to this catalogue, more highly distinguished than any of his predecessors, for numerous and valuable contributions to the science and literature of his profession, as well by his writings as by personal inculcations as a teacher at the head of the oldest, and, for a long period, the only Dental College in the world.

Chapin A. Harris has gone to his rest. On Sunday, the 30th of the last month, he fell asleep, to awake in an endless Sabbath. His family, his profession, and his country are left to mourn his loss. We therefore offer to this meeting, composed of some of his professional brethren, the following

RESOLUTIONS.

*Resolved, First,* That, in the death of Dr. C. A. Harris, removed from his earthly labors in the prime of manhood, from his family in the fervor of affection, and from his country in the ardor of his usefulness, we recognize a sad bereavment, which the members of the Dental profession in all civilized lands have just occasion to deplore.

*Resolved, Second,* That the labors of Dr. Harris, in assisting to establish the American Journal of Dental Science, the American Society of Dental Surgeons, and the Baltimore College of Dental Surgery, as well as in the construction and publication of his Dictionary of Medicine and Dentistry, and his Principles and Practice of Dental Surgery, have conferred favors on his profession which gratitude can never repay, because these and other labors in the same direction have broken his health, abridged his life, and gathered his friends and his family around his early grave.

*Resolved, Third,* That a committee of three be appointed by this meeting to convey to the family of the departed the sympathy of its members, on occasion of their great and irreparable loss.

*Resolved, Fourth,* That, in view of the great and important services which the self-denying labors of Dr. Harris have rendered to the Dental profession, a suitable testimonial be presented to the family of the deceased, by such members of the profession as may choose to contribute to that object.

*Resolved, Fifth,* That a Committee of three be appointed by this meeting to invite all dentists to unite with us in subscribing to raise a money testimonial to be presented to the widow of the late Dr. Harris, and that this Committee have power to appoint sub-Committees, in Europe and America, to carry out the above object.

*Resolved, Sixth,* That the said Committee be instructed to give ample notice of the purpose above explained, not only in all the Dental Journals, but also by means of a printed circular forwarded by mail to all the dentists in the United States, appointing the time for the presentation of said testimonial to the family, and determining the manner in which the fund shall be appropriated to its object.

*Resolved, Seventh,* That the Committee hereby authorized to receive and appropriate the contributions made for the benefit of the "HARRIS TESTIMONIAL FUND," shall be instructed to use no part of said fund for any expenses, except for printing and mailing the circulars and letters sent to members of the profession, editors of periodicals, and members of the Harris family.

*Resolved, Eighth,* That this meeting hereby requests all editors of

Dental periodicals to publish the proceedings of this meeting, together with the circular issued by the Committee, free of charge.

SOLYMAN BROWN, JOHN G. AMBLER, J. H. FOSTER, } *Committee on Resolutions.*

On motion, the Committee of three mentioned in the fifth resolution, was appointed, consisting of Drs. Eleazer Parmly, Solyman Brown, and E. J. Dunning. On motion, a Committee was appointed to transmit the resolutions adopted by this meeting to the family of the deceased, Dr. Harris. The officers of the meeting, assisted by Dr. Foster, were appointed a Committee. A resolution of thanks was then voted to the officers of the meeting, and briefly responded to by the Chair, after which the meeting adjourned.

During the proceedings, Drs. Parmly, Rich, Allen, Hill, Gunning, Roberts, Clarke, Castle, Franklin, Burras, and others, took occasion to express their sympathies with the occasion which had called them together, and their deep appreciation of the worth of the late Dr. Harris and his labors. The meeting was well attended, some fifty of the most prominent members of the profession in New York being present.

The earnest zeal manifested at this meeting leaves no room to doubt that a hearty and liberal response will be made to the printed Circular of the Committee, which will be forwarded in a few days to all the dentists whose address can be obtained, in both hemispheres.

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## PERISCOPE OF MEDICAL AND GENERAL SCIENCE IN THEIR RELATIONS TO DENTISTRY.

BY GEO. J. ZIEGLER, M. D.

*Sympathetic Irritation.*— In the course of his interesting lectures in the Lancet "On Pain, and the Therapeutic Influence of Mechanical and Physiological Rest," Mr. JOHN HILTON makes the following instructive remarks on this subject: "Pain in any part, when not associated with increase of temperature, the local symptom of local inflammation, must be looked upon as sympathetic pain, an exalted sensitiveness of the nerves of the part, and it is to be regarded as a pain depending upon a cause situated remotely from the part where the pain is expressed. In availing ourselves of these so-called sympathetic pains, (and no doubt they are in a certain sense sympathetic pains,) I should like to displace, to throw aside, the term 'sympathy' as something too ideal, and would ask you to consider such pains in their obvious, intelligible, and more natural relation. I would solicit you to mark them as resulting from some direct nervous communication passing between the part where the

pains are expressed and the real and remotely situated cause of the pain.

"I admit that I formerly looked at this subject very loosely, so that if a patient complained of pain between his shoulders, or anywhere else, I never asked myself, What association of nerves will explain this pain? But, beyond doubt, that is the proper way of regarding this question. If there be pain, with its hidden cause, in any one particular spot, it can only be by tracing the nerves of and from that spot that we can hope to arrive logically at the real cause of the symptoms, and so divest the case of its obscurity. Applying this method to practice, it is through the medium of the distribution of the cerebro-spinal nerves of sensation (the fifth nerve being the true cranial sensitive nerve) that we are enabled to explain those pains which are called sympathetic, but which result from a continuity of nerves between the cause and the affect, the disease and the symptom. It is impossible, I believe, to affix too much practical significance to, or over-estimate the value of, this simple statement regarding the relation of pain as a symptom of disease to the diagnosis of the kind of case in which pain forms a prominent symptom. * * *

"Now, external pain, or pain upon the surface of the body, may be considered, if properly appreciated, as an external sign or demonstration of some distant derangement. If the pain persists—if it does not depend on any transient cause—it becomes necessary to seek the precise position of the pain; and, as soon as we recognize the precise position of the pain, we are enabled, by knowing the distribution of the nerve or nerves of that part, to arrive at once at the only rational suggestion as to what nerve is the exponent of the symptom; and by following centripetally the course of that nerve, and bearing in mind its relation to surrounding structures, we shall, in all probability—indeed, most likely—be able to reach the original, the producing, cause of the pain, and, consequently, adopt the correct diagnosis.

"Patients judge most frequently of the position of their own disease by the situation of the painful symptoms most prominent or most palpable to their senses; while we surgeons, relying upon our knowledge of the true cause of the symptoms, judge of the seat of the disease by a just interpretation of the symptoms through the medium of normal anatomy; and we know by experience that such symptoms may exhibit themselves at, or far removed from, the actual seat of the disease; this latter remark being peculiarly applicable or pertinent to the subject of disease of the spine. * * *

"In elucidation of this statement, and of my conviction as to the value of pain as a symptom in relation to diagnosis, let me put the subject in a plain and practical way. You know that the upper and anterior part of the fifth cerebral nerve, which has its direct nervous associations with the interior of the head, the forehead anteriorly, the temple, face, eyes, nose, teeth, and tongue; while the posterior part and the anterior part of the pendulous portion of the external ear derive their sensitive nervous supply from the spinal nerves issuing from the spine between the second and third cervical vertebræ. It may appear to some of my anatomical

friends rather remarkable that I should have depicted by coloration the precise distribution of the two sensitive nerves supplying exterior auditory apparatus.* It arises out of a curious circumstance. Some time ago I was anxious to depict this piece of anatomy from my own dissections, but I did not feel quite satisfied as to the exact line of demarkation where the cervical nerve supplied the skin of the ear and where the fifth nerve was distributed. A short time since, a man, who is now undergoing the punishment of penal servitude, attempted to cut his wife's throat. In drawing the razor across her neck, he divided the auricular branch of this second cervical nerve, and gave me an opportunity of ascertaining the distribution of that nerve. My dresser, as well as myself, pricked with a needle over the whole of the auricular surface, and ascertained minutely the precise position of the loss of sensation consequent upon the division of the cervical nerve ; while the skin which retained its sensation indicated with equal precision the distribution of the fifth cerebral nerve upon the external ear.

"When a patient, then, tells us that he has earache, or pain in or upon his ear, we ought to ascertain whether it is pain upon the back part of the ear, or whether it is in the auditory canal, or upon the anterior and lower portion of the ear ; because it is obvious that the real cause must be widely different in the two cases. If the patient has pain in the auditory canal, or the upper portion of the anterior part of the external ear, the pain must be, without question, (I hope I shall not be considered as putting this too dogmatically,) the result of some irritation or diseased condition or cause associated with the fifth cerebral nerve, and this gives precision to further inquiry.

"Now, we know very well that there is often a simultaneous occurance of toothache and earache. The same nerve supplying the auditory canal and the anterior portion of the ear supplies also the teeth; hence, in all probability, this sympathetically associated influence. I think you may take a further step in the other direction, and say that earache is often accompanied with stiffness of the jaws, the fifth nerve supplying the masticatory muscles which fix the jaw. So we know perfectly well that disease affecting any part of the anterior third of the tongue is a very common cause of pain in the auditory canal, the tongue and the auditory canal being supplied by the fifth nerve. These auricular pains are pretty constant in cases of malignant disease attacking the side of the tongue or the part toward the apex. Local morbid conditions are sometimes induced by irritating secretions resulting from the free nervous communication between the different parts which derive their sensibility from the fifth nerve.

"A professional friend had an enlarged gland below the external ear. The real cause of this was not quite apparent, and so he requested me to look at it. There was a slight discharge of morbid secretion in the auditory canal. We argued the question together, and I said, 'Very likely it may be the result of a decayed tooth. Irritation from it may be conveyed to the auditory canal, and induce this morbid secretion; that morbid secretion may produce slight excoriation, and that excoriation, aided by lymphatic absorption, may

* In reference to a drawing illustrative of this distribution.

explain the existenc of the enlarged gland.' The tooth was extracted, and all the other local morbid conditions disappeared, and there was no recurrence of these local symptoms.

"In order to show the practical application of the views I have just advanced, I may mention a case that occurred last year. A gentleman, aged sixty-three, came to consult me regarding an ulcer situated upon the left side of his tongue. On examination, I there found an elongated, very ugly-looking ulcer, nearly as large as a bitter almond, and of much the same shape. The surrounding parts were swollen, hard, red, and much inflammed, and a lymphatic gland was enlarged below the horizontal ramus of the lower jaw on the same side. I saw in the mouth a rugged tooth, with several projecting points upon it, opposite the ulcer. This gentleman observed to me, 'Having suffered a good deal from earache on the left side for a long time, without experiencing any relief from medical treatment, it was thought that I must be gouty, and I went to a surgeon who treats gouty affections of the ear. This surgeon paid great attention to my ear, but certainly did not do it the slightest degree of good. I accidentally mentioned to him that I had had for some time past something the matter with my tongue. On seeing it, he immediately began to apply caustic vigorously; moreover, not satisfied with applying it himself, he gave it to my wife, that she might apply it at home. I have gone on in this way from day to day until the pain in my ear is very considerably increased, and the ulcer on my tongue is enlarging: so I have come to you for your opinion regarding my state; for, to tell you the truth, I am afraid of a cancer in my tongue.' I thought I saw the explanation of this patient's symptoms. The pain in the ear was expressed by the fifth cerebral nerve, and there was a rugged tooth with little projections upon it, some of which opposed and touched a small filament of the lingual-gustatory branch of the fifth cerebral nerve in the surface of the ulcer. I detected this little filament by placing upon it the end of a blunt probe. It was situated near the centre of the ulcer, and was by far its most exquisitely painful part. This exposed nerve caused the pain in the auditory canal which led him to go to the aurist, and the aurist, instead of confining himself to his own department, seized the tongue, put nitrate of silver upon the whole of the ulcer, and increased the mischief. I simply desired that the ulcer should be left at rest; that the patient should not talk nor move his tongue more than necessary, so as to avoid touching the tooth; that he should wash his mouth with some poppy fomentation, and take a little soda and sarsaparilla twice a day. In three days about one-third of the ulcer was healed up, actually cicatrized, the enlarged gland nearly gone, and the earache much diminished.

"This rapid improvement might appear something like exaggeration, but all surgeons know that the tongue has those elements within it which contribute to the most rapid repair of injury. I do not know any tissue that repairs itself more rapidly. It is abundantly supplied with capillaries filled with arterial blood, and has an enormous distribution of nerves, and those are the two elements that contribute to rapid reparation. It was quite clear that the treatment was in the right direction—viz., that of giving rest to the

tongue and ulcer. After a few more days I requested him to consult a dental surgeon with respect to the propriety of taking off the points of the tooth. This was afterwards done, and the patient soon lost his anxiety about cancer, his earache, and all the severe indications he before had experienced."

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*Reproduction of Blood-vessels and Nerves.*—"A paper was read at the last meeting of the Academy of Sciences by M. Jobert de Lamballe, in which the progress of vascular and nervous reproduction, as observed during the cicatrization of engrafted skin, is accurately studied. The operation serving as text for this essay was undertaken for the purpose of remedying a deformity resulting from the removal of a secondary cancer. The region occupied by the unsightly cicatrix was the right eyebrow, the inner angle of the eye, and ala of the nose on the same side. In providing a flap destined to cover this unbecoming scar, the surgeon dissected off from the forehead a somewhat pear-shaped patch of skin, (the exact size requisite having previously been ascertained by measurement,) with the exception of a narrow slip, or pedicle, reserved for the conveyance of vascular supply to the flap; the whole was completely detached from the surrounding integument, and turned down upon the scar, (itself also deprived of its imperfect superstratum of cutis.) and there secured by the interrupted suture. The engrafted slip of tissue—much in the position of a man who has purchased a practice in a new neighborhood, with a limited introduction, to use a horticultural phrase—too kindly to its new soil, and by the eighth day the sutures were dispensed with. The temperature of the transplanted skin remained low, however, and its texture flabby and inelastic; a slight prick with a pin on its surface was not followed by bleeding, and pressure or tickling was referred *to the pedicle* alone. That some vascular supply did, however, reach its vessels was incontestable, for the part presented no appearance of gangrene. Day after day the same experiments were repeated; at length a little blood followed the slight puncture, and a slight sensation was perceptible in the part pricked. These signs of returning vitality steadily augmented, and by the end of the third month after the operation, the graft was deemed to possess sufficient independent vigor to shift for itself; and the little isthmus being declared unnecessary, the flap was isolated, and its cut extremity turned down toward the inner angle of the eye, where the scar hitherto had purposely been left uncovered. The deformity was thus completely remedied, and the cure most successful. M. Jobert, in his remarks upon the way in which the vascular and nervous relations are established between tissues thus artificially brought into contact, draws especial attention to the consecutive advance of the two functions, the one in the wake of the other; the new circulation entailing the new innervation, and the perfect development of the former being immediately followed up by a similar progress in the latter. The author also expresses it as his opinion, that the mode in which the correct sensibility of the engrafted tissue is restored after transplantation by means of its communications with the part into which it is deposited, is a proof of the unity and identity of the sensitive function all over the body."—(*Paris Correspondent of Lancet.*)

*Effects of Tobacco.*—In a letter to the *London Times*, republished in the *Medical Times and Gazette*, Sir Benj. Brodie expresses his general disapprobation of the habitual use of tobacco, and makes the following observations on its deleterious effects :—

"The effects of this habit are indeed various, the difference depending on difference of constitution and difference in the mode of life otherwise. But, from the best observations which I have been able to make on the subject, I am led to believe that there are very few who do not suffer harm from it, to a greater or less extent. The earliest symptoms are manifested in the derangement of the nervous system. A large proportion of habitual smokers are rendered lazy and listless, indisposed to bodily and incapable of much mental exertion. Others suffer from depression of the spirits, amounting to hypochondriasis, which smoking relieves for a time, though it aggravates the evil afterwards. Occasionally there is a general nervous excitability, which, though very much less in degree, partake of the nature of the *delirium tremens* of drunkards. I have known many individuals to suffer from severe nervous pains, sometimes in one, sometimes in another part of the body. Almost the worst case of neuralgia that ever came under my observation, was that of a gentleman who consulted the late Dr. Bright and myself. The pains were universal, and never absent but during the night they were especially intense, so as almost wholly to prevent sleep. Neither the patient himself nor his medical attendant had any doubts that the disease was to be attributed to his former habit of smoking, on the discontinuance of which he slowly and gradually recovered. An eminent surgeon, who has a great experience in ophthalmic diseases, believes that, in some instances, he has been able to trace blindness from amaurosis to excess in tobacco smoking; and the connection of the two being pretty well established in one case by the fact that, on the practice being left off, the sight of the patient was gradually restored. It would be easy for me to refer to other symptoms indicating deficient power of the nervous system to which smokers are liable; but it is unnecessary for me to do so; and, indeed, there are some which I would rather leave them to imagine for themselves than undertake the description of them myself in writing.

"But the ill effects of tobacco are not confined to the nervous system. In many instances there is a loss of the healthy appetite for food, the imperfect state of the digestion being soon rendered manifest by the loss of flesh and the sallow countenance. It is difficult to say what other diseases may not follow the imperfect assimilation of food continued during a long period of time. So many causes are in operation in the human body which may tend in a greater or less degree to the production of organic changes in it, that it is only in some instances we can venture to pronounce as to the precise manner in which a disease that proves mortal has originated. From cases, however, which have fallen under my own observation, and from a consideration of all the circumstances, I cannot entertain a doubt that, if we could obtain accurate statistics on the subject, we should find that the value of life in inveterate smokers is considerably below the average.

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" Mansfield, J., Niles, Mich.
" McAuley & Paisley, Selma, Ala.
" McKenney, Wm. N., Norfolk, Va.
" McDowell, S. A., Goldsborough, N. C.
" Miller & Hale, Rockford, Ill.
" Merritt, Chas., Bridgeport, Ct.
" McClure, J. B., Carrollton, Miss.

" Naramore, J., Rochester, N. Y.
" Nolan, D. S., Boston, Mass.
" Nichols, J. A., Lowville, N. Y.
" Norris, J., Charlottesville, Va.
" Noreross, D. L , Fredonia, N. Y.
" Noble, W. H., Mt. Morris, N. Y.

" Oliver, W. G., Buffalo, N. Y.

" Porter, C. B., Ann Arbor, Mich.
" Priest & Wells, Utica, N. Y.
" Pelton, J. A. & H. P., Middletown, Conn.
" Pursell, A. E., Madison, Ind.
" Perkins, J. A., Albany, N. Y.
" Peebles & Duuham, St. Louis, Mo.
" Payne, Jos., Bloomington, Ill.

Dr. Paterson, Geo., Augusta, Ga.
" Paine, Geo. L., Xenia, O.
" Palmer, C., Warren, O.
" Price, C. B., Jamestown, N. Y.
" Peck, H. B., Wolcott, N. Y.
" Parmly, G. W. New Orleans, La.
" Proctor & Allen, Rochester, N. Y.
" Pray & Russell, Great Falls, N. H.

" Roberts, H. N., Rutland, Vt.
" Robbins, A. B., Meadville, Pa.
" Rodrigues, B. A., Charleston, S. C.
" Robinson, S. M., Watertown, N. Y.
" Rogers, L. W., Utica, N. Y.
" Robinson, B. F., Cleveland, O.
" Rawson, J. B., Jamestown, N. Y.
" Richardson, Jos., Cincinnati, O.
" Robinson, J. A., Jackson, Mich.
" Russell, R., Nashville, Tenn.
" Rice, A., Spencerport, N. Y.
" Reynolds, R. G. Waterbury, Conn.
" Ryder, W. E., Tuscaloosa, Ala.
" Rogers, J. W., Rochester, N. Y.
" Requa, J., Rochester, N. Y.
" Ramsay, J., Springfield, O.
" Rose, B. A., Urbana, O.
" Ross, N. D., Troy, N. Y.
" Roberts, W. H., Richmond, Va.
" Roberts, Spencer, Philadelphia, Pa.
" Reese, G. W., Columbus, Ga.
" Roberts & Gregg, Columbia, S. C.

" Sumner, C. G., Norwich, N. Y.
" Swartly & Shult, Pennsburgh, Pa.
" Snow, R. G., Buffalo, N. Y.
" Smith, D. D. & A. T., Syracuse, N. Y.
" Spencer & Simmons, Providence, R. I.
" Salmon, E., Lima, N. Y.
" Smedley, A. P., Media, Pa.
" Sylvester & Jameson, Lyons, N. Y.
" Strickland, B., Cleveland, O.
" Spencer, Geo. W., Pittsburgh, Pa.
" Steinburg, David, New York City
" Smyth, Job, Hallsport, N. Y.
" Small, M. W., Woonsocket, R. I.
" Shattuck, Wm. H., Janesville, Wis.
" Seroggs, J. A., Galena, Ill.
" Siddall, J. F., Oberlin, O.
" Spalding, C. W., St. Louis, Mo.
" Sohn, E. C., Galesborough, Ill.
" Shower, E., Nashville, Tenn.
" Smith, J., Dover, N. H.
" Smith, B. F., New Orleans, La.
" Seger, H., Montgomery, Ala.
" Scranton, J. N., Bennington, Vt.
" Stinson, Wm. H., Baltimore, Md.

Dr. Skinner, E. M., Syracuse, N. Y.
" Smith, A. S., Oswego, "
" Scott, Quincy A., Pittsburgh, Pa.
" Stoddard, Wm. F., New London, Conn.
" Simmonds, J. L., Boston, Mass.
" Saunders, A. A., Cherry Valley, N. Y.
" Schuyler, J. E., Hudson, N. Y.
" Stebbins, N., Pittsburgh, Pa.
" Scott, R., Greensboro', N. C.
" Stevens, N., Batavia, N. Y.
" Sweet & Easton, Pontiac, Ill.
" Shirley & Retter, Jacksonville, Ill.

" Thompson, C. A., Westfield, N. Y.
" Terry, Alfred, Norwalk, O.
" Taylor, Jas., Cincinnati, O.
" Todd, A. W., Montgomery, Ala.
" Tewksbury, H. L., Mt. Morris, N. Y.
" Tripp, Geo. W., Auburn, N. Y.
" Tower, H. T., Lyons, "
" Truesdell & Creighton, Elgin, Ill.
" Trapp, J., Williamsport, Pa.

" Van Vleck, Wm. B., Hudson, N.Y.
" Van Vleck, V., Hamilton, N. Y.
" Vandenburgh, D., Oswego, N. Y.
" Vinal, G. A. W., Andover, Mass.

" Wright, W. F., Pittsburgh, Pa.
" Wanzer, H. C., Rochester, N. Y.
" Westlake, A. W., Rahway, N. J.
" White, Thos. A., Detroit, Mich.
" Whitney, B. F., Buffalo, N. Y.
" Westcott, A., Syracuse, N. Y.
" Wilson, E. F., Rochester, N. Y.
" Walters, L. D., Lockport, N. Y.
" Whiting & Benedict, Detroit, Mich.
" Wadsworth, H. N., Washington, D. C.
" Watt, Geo., Xenia, O.
" Wayt, J. H., Charlotte, N. C.
" Wilkinson, A. L., Huntsville, Ala.
" Ward, S. L. & W. G., Lowell, Mass.
" White, H. R., Utica, N. Y.
" Wheeler, W. H., Baltimore, Md.
" Way, L. E., Lee, Mass.
" Williams, M. W., Honesdale, Pa.
" Wood, B. Nashville, Tenn.
" Woodruff U., Canandaigua, N.Y.
" Wilson, E. T. & Son, Boston, Mass.
" White & Weller, Durham, N. Y.

" Young, A. J., Dover, N. H.

# EDITORIAL.

## THE AMERICAN DENTAL ASSOCIATION.

This Association, *composed of delegates*, held its meeting in the city of Washington, July 31st, 1860, about twenty delegates present. "Upon the whole," the *Dental Register* thinks, "the Association has made an encouraging start." The duties of the "Committee on Publications" will not be arduous this time, inasmuch as most of the committees on essays "failed." Dr. McQuillen, however, did give an "oral synopsis" of a paper, which he declined furnishing to the *delegated Association*, as he wished to publish it in the *Cosmos*, where we presume he thought it would do more good. "We expect," says the *Register*, "great good from the Association." "And when it comes to be understood that the annihilation of the American Convention is no part of its programme, the Association will, no doubt, count among its friends many who now stand aloof through fear or jealousy of its influence on the former body."

Our first impressions as to the objects of this delegated Association were obtained on reading the following resolution, adopted at a meeting of the "Pennsylvania Association of Dental Surgeons," October 5th, 1858.

"*Resolved*, That two or more of the Association shall be elected delegates to the American Dental Convention, with *instructions* to suggest the expediency of the Convention becoming a delegative body, composed of representatives from State and County Dental Associations throughout the Union."

This was the first move made by any local society, and must be regarded as setting forth the real objects sought to be attained by this new movement. In June following, the *Dental Register* published a "call," with the names of dentists from Pennsylvania, Ohio, Michigan, Indiana, Illinois, Missouri, and Mississippi attached, which was as follows:

"A Call.—The undersigned Practitioners of Dentistry, believing that a national association of dentists, composed of delegates from state, county, and local societies, and dental colleges, would be calculated to promote the best interest of the profession, respectfully suggest to the dental societies and colleges throughout the country the propriety of electing delegates to meet in convention at the Falls of Niagara, on the first Wednesday of August, 1859, for the purpose of forming, if the assembled delegates shall deem it expedient, a national association upon a representative basis."

There being no organizations in the State of New York or Eastern States, the following call was issued in the city of New York, and signed by a large number of dentists:

"A Call.—*Whereas*, Preliminary movements have been made in some sections of the country, to change the American Dental Convention into a representative body, or, failing to make such change, to organize at Niagara Falls another National Association, to be composed of Delegates from local societies already existng; and

"*Whereas*, New York and the Eastern States having no such organizations

the profession in these States would not be eligible to a seat or voice in said so-called National Association;

"*Therefore*, The Dental Profession of the City and State of New York, and Eastern States and Towns, are cordially invited to meet at No. 57 Bond Street, on Saturday, June 25th, at 8 o'clock P. M., for the purpose of expressing their views in relation to the contemplated change."

This meeting was largely attended; and, after a full discussion of the subject, the following resolutions were adopted:

"*Whereas*, There is a disposition manifested on the part of some members of our profession to change the American Dental Convention from its present form to that of a representative body; therefore,

"*Resolved*, That it is the opinion of this meeting that there is no evidence that a necessity exists at this time for any such change, or that any national convention or association, composed of delegates embracing a fractitional part of our profession, could possibly subserve the purposes and objects aimed at by the founders of the American Dental Convention.

"*Resolved*, That this meeting has entire confidence in the principles upon whic the American Dental Convention was organized; that we feel certain that th benefits anticipated from its deliberations are being realized and appreciated b the profession in general, for whose improvement it was instituted, and upon whos effort will depend its ultimate usefulness and perpetuity.

"*Resolved*, That it is the duty of every dentist who desires the advancement f the profession, to attend the Convention at Niagara Falls, and use his influence against any action tending to dissolve the American Convention at Niagara Falls, or to create any delegated organization."

It is evident to our minds that the first movers of this *delegated body* did contemplate the "annihilation" of the "American Convention." This is shown by their own original resolutions of instructions to their delegates, as well as the subsequent acts of some of the delegates assembled at Washington; for it is patent that they labored hard to prevent members from attending at Saratoga. This, however, is but natural: "rule or ruin" is the motto. For our own part, we seriously question the *ability* of the few that came together at Washington to "collectively represent and have cognizance of the common interests of the dental profession in every part of the United States;" we believe the dentists of New York and Eastern States can best represent their own interest *individually;* and we further believe that the founders of the American Dental Convention System understood the wants of the profession in this country. A few of our silk-stocking, kid-gloved *exquisites* may fear contact with the masses; but it is a most gratifying fact that we have among us those who cheerfully labor for the elevation of our whole profession, believing that the open convention system is far better adapted to this end than a few getting together and the masses excluded. If our profession were composed of educated men, in every respect qualified to take upon themselves the highest duties and obligations of professional life, and if associations and societies existed generally throughout the United States, there could be little if any objection to the existence of a delegated association. This was not, is not, and will not be the case for a long time to come; neither do we believe this movement, at this time, calculated to facilitate the organization of local societies. The natural jealousies existing between members of a profession like ours, constituted

as it is, embracing as it does all grades and conditions of qualifications, precludes the probability of general local organization. The American Dental Convention System has done and is doing much to educate the mass of its members for a higher and more exalted position of usefulness; and when the time shall come that ignorance and empiricism shall give way before the light of true knowledge, the members of our profession will naturally come together in local societies by the law of affinity, and not till then.

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## THE AMERICAN DENTAL CONVENTION.

The meeting of this Convention at Saratoga has established for ever an enviable reputation for clear, calm deliberation and scientific investigation. The meeting throughout was characterized by a spirit of toleration. The discussion, though animated at times, was nevertheless gentlemanly and courteous, and a large amount of useful practical information elicted, proving conclusively the benefits derived from those in attendance. The number that subscribed their names to the constitution, and paid their initiation fee, was larger than at any former meeting. The treasury is in a healthy condition, and the friends of the American Convention was never in better spirits. It is to be regretted that a semi-annual meeting of the American Convention could not be held—a winter and summer session—in which case it would be delightful to meet our southern brethren at Charleston or some other accessible point during the winter months, and thus augment the usefulness of the American Convention; we are in favor of a semi-annual meeting. This convention system has one gratifying feature in its favor. dentists from all parts of the country, and often from the same locality, come together, each anxious to contribute his experience, thus adding to the general interest of the occasion; and, by associating together annually, become acquainted, contracting relations which exert a happy influence upon their professional intercourse with each other through the year. Long may the American Dental Convention continue its usefulness.

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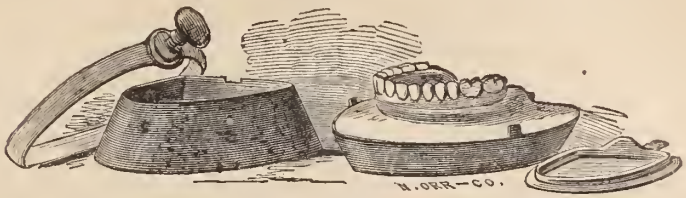
## DIRECTIONS FOR PUTTING UP THE VULCANITE BASE.

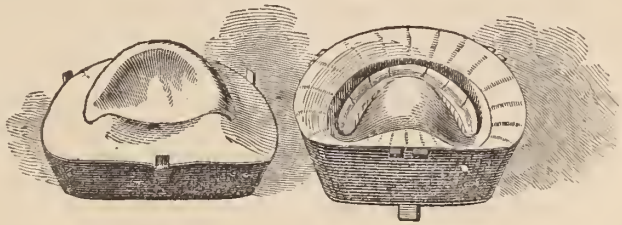
After a thin plaster model is obtained from a *perfect impression*, adapt a gutta percha or wax plate to the model, the size, thickness, and form required; with this get the bite or articulation of the mouth, the same as with a metal plate; arrange the teeth to the wax, the same as for other styles of work, being careful to bend the pins in the teeth, to form hooks either downward or sideways, or both, as the teeth may require. After the teeth are arranged, and the proper expression given, build wax around the teeth, as desired when the vulcanite is substituted. This process duplicates the wax form in the most perfect manner. The wax should be smoothed with a warm spatula, and a little wax melted around the edge of the plate, to fasten it to the model, to prevent any plaster from running under the plate when the upper half of the flask is filled. Some little pains and taste, at this stage of the work, will save much time in finishing after the work is vul-

eanized. The model, with the teeth and wax form upon it, is set, teeth up, in the under side of the flask, and filled with fresh-mixed plaster, even with the edge, or to a line that will admit of a separation, when the remaining half of the flask is put together and filled. Cut 1, with teeth, represents a case in the lower half of the



Cut 1.

flask, ready for the upper half. We now varnish the plaster with shellac varnish; when dry, oil the varnished surface, then place the upper section in its place, and fill with fresh-mixed plaster, being careful to fill every part complete, allowing no air-bubbles in the plaster. It is of the utmost importance that the plaster be worked so as to make a homogeneous and solid mass. The cap or top of the flask may now be placed in position, and the clamp or band screwed around the flask. After the plaster has sufficiently set, warm the flask and contents to about blood heat, or a little above, and gently separate; the teeth will be found firmly held in the upper section, with the temporary plate and wax attached. Now carefully remove the plate and wax, cleaning away all adhering wax from around the teeth, and from between the pins, as seen in cut 2. We now set the upper half, containing the teeth, near the fire, and warm it, gently at first, increasing till quite hot. We now cut the rubber into strips of suitable width and length convenient to fill in and around the pins and teeth, and for the plate, and soften them by placing them on a hot brick, or in any other convenient manner. A tin vessel, with a flat cover, containing boiling water, is the best, as there is no danger with it of overheating the rubber. When it is soft and sticky, we commence



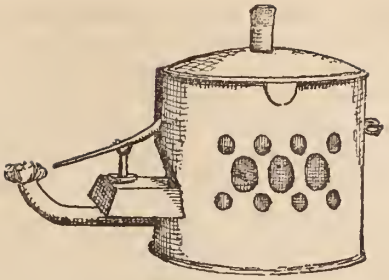
Cut 2.

packing narrow strips around the pins, and in the grooves on the anterior side of the base of the teeth, being careful not to allow any plaster, or other foreign substances, to work into the rubber. Proceed in this manner, adding piece after piece, until the space occupied by the plate and wax is a little more than full. The part of the flask containing the model should be kept cold. The two parts may now be brought together, and a gentle pressure applied. If any blank places are visible on taking the flask apart, more gum may be added. We now cut a series of grooves, one-eighth of an inch in width and depth, from the gum to the

outer edge of the plaster, as seen in cut 2. These grooves permit any surplus gum to escape when the flask is screwed together. Some are in the habit of working tin-foil on to the model, after melting a thin coating of wax over the surface of the model, or by wetting the surface with any mucilaginous gum, or liquid silex, and carefully rubbing the foil down smooth on to the model. After the case is vulcanized, the foil can be dissolved with hydrochloric acid. The foil prevents the plaster from coming in contact with the vulcanite and the under surface of the plate, presenting a much more comely appearance. The flask is now to be put together, the two edges being kept as nearly parallel as possible, the clamp placed on or around the flask, so as to bring it together as even and uniformly as possible. We now gently screw the flask partly down, and set it in a warm place for a short time, so as to give the gum time to yield under the pressure, as well as to prevent the teeth from being displaced by a too sudden force, starting the screw at short intervals, until the parts come together. As a test for the completion of the vulcanization, twist a little of the gum around the screw outside of the flask; this, in case of any mistake in time, or otherwise, will give the operator a correct idea of the condition of the gum inside, without being under the necessity of opening the flask; if too little done it may be replaced in the heater, and vulcanized over. The flask may be placed under water in the heater; one hour at 315, 320, or 325 degrees is sufficient time to vulcanize the rubber. The degree of heat required to do good work may vary a little, in consequence of the variation in the thermometers. The best results, however, are when the vulcanite presents the consistency of horn under the scraping. If too long time is given in vulcanizing, it is more dark in color, and less tenacious. To prevent the gum from working between the joints of the teeth after the wax is removed, as seen in cut 2, fill the joints with dry plaster, and saturate with liquid silex. To finish the work, use coarse files, and scrapers of various shapes and sizes; then fine sand-paper or emery-cloth, cork wheels and fine ground pumice-stone and water, cotton wheel, or very fine brush wheels, and whiting or prepared chalk and water. The vulcanite rubber is susceptible of a fine and beautiful polish, and the more perfectly it is finished the less likely it will be to retain minute particles upon its surface. The color of the work may be improved by placing it in a glass vessel under alcohol, and setting it in the sun for a few hours.

The form of partial cases can be changed, after being vulcanized, by covering the surface with sweet oil, and holding it near a fire, or over a spirit-lamp, care being taken not to burn it; when quite hot the vulcanite becomes softened, and very considerable change may be made, and when cold it will retain the shape and position given to it. These changes can be made any number of times without impairing its strength or elasticity.

In cases of misfitting of vulcanite plates, in consequence of wrong impressions, or absorption, or otherwise, take another impression of the mouth, fill for the model, and cut or scrape away the rubber so as to bring the plate reasonably close on to the new model; secure the plate to the model by melting wax along its edge, and set the case and model into the flask, the same as a new one. After the plaster has set, separate the flask; the part containing the teeth and plate is to be heated up until the rubber is quite soft, when it can be removed with ease, and new rubber substituted, saving the articulation complete; the case is then to be vulcanized as at first.



GERMAN BLOWPIPE.

The above cut represents a new Blowpipe. Our engraver omitted to letter the various parts, and hence it is more difficult to describe it than it otherwise would be. The boiler is made of sheet brass. The little lamp that heats the boiler is made of tin. This lamp, as represented in the cut, is resting on the main or soldering lamp, and can be drawn backward by means of a wire attached to the back end of the lamp; this wire passes through the centre of the case, and is seen protruding from the back side; by this backward and forward motion, the intensity of the flame is regulated; it is simple in all its parts. The principle is a good one, and it will undoubtedly become a favorite with metal workers. Price $3.00.

## BUSINESS NOTICES.

*Paraffine.*—We have at length been able to get a supply of Paraffine, for impressions, and can furnish it in any quantity, at sixty cents per pound. It is believed to be superior to wax for taking impressions of difficult cases; it is tough, and very hard when chilled. Its specific gravity is considerably less than that of wax, and consequently more economical. We have it in several colors.

*Vulcanized Silicious Paper.*—This superior article for polishing Teeth, &c., samples of which we presented to the members of the Convention at Saratoga, we can furnish in any quantity at twelve cents the square foot. One square foot sent per mail, to any part of the United States or Canada, on receipt of twenty-four cents in postage stamps. Hot or cold water, or oil, will not affect it. It is strong, and from the many letters we have received from Dentists, who have given it a trial since the meeting at Saratoga, we are led to believe that it is superior to any thing heretofore used for the same purpose.

The cut of a new Soldering Lamp, in this Number of the "Vulcanite," represents a German Blowpipe, which, for simplicity, efficiency, and economy, we think is without a parallel in the catalogue of Blowpipes. Price $3.00; all Brass $5.00.

*Correction.*—Our neighbor of the New York Dental Journal *has once more fallen into error*, in stating that "Among the most important acts performed by the *Society*, was the appointment of delegates to the National Convention at Washington." No delegates were ever appointed by said society; we were aware at the time that one of the members wanted to be appointed *badly*, but he *wasn't*. We trust our neighbor's "regret" will not materially affect him, as duties of late have so accumulated on his *hands*. What is meant, when he says "We regret to see self conflicting with the interest of the profession," we can not divine; perhaps he

thought, because "this move was killed by its opponents Drs. Franklin, Burras, and others," that the profession are that small portion, and that the National Convention would not get a supply of Teeth, and thus its "interests" be "conflicted" with; or perhaps he thought that in consequence of "this move being killed" the National Convention would be minus W. B. Roberts, and thus the interests of the profession be conflicted with. But, as he says "we may refer to this subject again," we shall refrain from further guessing what he did mean.

Dr. E. F. Wilson, Rochester, N. Y., has opened a Dental Dépôt for the sale of all kinds of Dental goods. The Doctor has had a large experience in Dentistry, and is thoroughly conversant with the wants of the Profession. His stock of teeth is selected with particular reference to the wants of Dentists, embracing a variety of manufactures not to be found in any one Dépôt in New York. The profession in Central New York will find it for their interest and convenience to call on Dr. Wilson; they will find him "at home," courteous, obliging, and ready to do the amiable.

*Porter's Teeth.*—We have used for a long time D. H. Porter's Teeth, manufactured at Bridgeport, Ct. In form, color, and strength, they are unsurpassed by any in the market. The Rubber section Teeth require lest grinding to bring the joints together than any of the other manufactures, and when mounted there is an individuality that gives character and expression to the denture. The superiority of Porter's Continuous Gum Teeth has been long established. They possess, in their combination, power to resist the several heatings required in Continuous Gum work to an extent perhaps not equalled by any others.

*To the Teeth Manufacturers.*—Gentlemen:—While we are frank to acknowledge that you are entitled to great credit for your persevering efforts to meet the largely increasing demands for Porcelain Teeth, in this and other countries, and while we are aware that you are governed in a great degree by the demands of the profession and make *teeth that will sell*, nevertheless it is our opinion that much is yet required at your hands, before your productions reach a point *true to nature*. Every Dentist of much experience and taste will readily appreciate the *scarcity* of teeth in our market that are adapted to persons of advanced years. A majority of artificial dentures are made for patients over forty years of age, and frequently for those much older. We want a character of teeth for this class of patients, that, when mounted, will harmonize with the rest of the individual, and not give the impression that an *anomaly exists* in the shape of a third dentition. If a person of forty or fifty years of age had retained his natural teeth, their appearance would have undergone a natural change in that time; the point would have become rounded, for nature abhors angularity in age, the color deepened, the necks of the teeth more or less denuded of the gums, the gums themselves less florid, and all the conditions (as a principle) would harmonize with the unmistakable evidences that time traces on the human features. Nothing can possibly be more out of keeping than young teeth with pointed cusps, sharp in outline, delicate in texture, and painfully regular, in the mouth of a patient wrinkled by time, and sallow from age. It is in vain that we employ artifice to conceal the fact that we are on the wrong side of a certain age. Nature will take care that we do not deceive ourselves or others in that way. Art for a time may deceive us into the belief that we are young, but nature still asserts the contrary; and, knowing

herself to be right, she will enforce an acknowledgment from others. Let us have a few teeth that look as though they had seen a good honest *forty years'* service.

*Caution.*—The Profession are cautioned against purchasing prepared Gums of unscrupulous persons travelling about the country, pretending to be Agents of the American Hard Rubber Company. As no Agent of said company is authorized to sell the Company's Rubber, except to the Licensees, a full list of all our authorized Agents will be found in this number of the "Vulcanite." Any other persons offering any compound, representing it to be the American Hard Rubber Company's Gum, are *impostors*. Look out for them.

Figures for the Thoughtful.—From an estimate made from our own books, and from other reliable sources, the quantity of Vulcanizable Gums used by the profession the past year, will exceed 3000 pounds. The prepared Rubber will make on an average 14 cases to the pound; this would make 42,000 cases, and the cost to the profession would be $9,000. The cost of Gold for an ordinary case will average $15 per case; the same number of cases made of Gold would cost $630,000, making a nett saving to the profession and public in one year, of $621,000. Surely we are on the eve of a great *revolution*. Is it to be wondered at that most of the dealers in dental goods in the country have opposed the "Rubber Work?" The great falling off in the sale of *Gold Plate and Solder*, we presume, has had something to do with this continued opposition of those engaged in the Dental Depôt business.

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Dr. W. B. Roberts, at the Convention at Saratoga, among many other things, said that "it was claimed that Rubber contained Sulphur, and if taken into the system, could not be healthy." What taken into the system—Rubber, or Sulphur? The quantity of sulphur used in an ordinary plate of vulcanite would not be one-tenth as much as is administered to children, and is considered healthy; if the rubber vulcanite were taken into the system, we presume it would be indigestible. Again: "He had been informed upon good authority, that the red oxide of mercury was used in the coloring material." If so, he did not believe that the vulcanizing process would destroy its deleterious effects upon the system if taken into it, as it would remain mercury still."

Vermilion is used as a coloring for the rubber, and if Dr. Roberts really desires information, he can find it by consulting Ure, vol. ii., page 899; he will there find, instead of the "red oxid of mercury," it is the bisulphuret of mercury that is used, and he will also find, "on exposure to a moderate heat it evaporates without *leaving a residuum*." What next? Dr. Covil thought, among other dire consequences that would follow, that *Match Factory* diseases would be produced by the use of vulcanite plates. We had always understood that phosphoric acid gas was the cause of match factory diseases, and not sulphur. Gentlemen, you will have to try again; we think you are quite unfortunate in your attempts at explaining causes and effects: nevertheless there is a good chance to learn.

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## Obituary.

We are pained, says the Baltimore *American* of the 1st inst, to announce the death, at his late residence in this city, of Professor Chapin A. Harris, the father of the science of American dentistry, and one of the most laborious and use-

ful professional authors, teachers, and practitioners in our country. This sad event occurred on Saturday afternoon last, and was the result of long illness contracted by sheer overwork in his excessive and varied labors in the line of his science, to which he was but too ardently devoted. The career of Dr. Harris has been full of interest, and he has achieved in his thirty years of professional life very marked results in elevating and developing the important branch of medicine for which he so long and so well labored. He was born in 1806, at Pompey, Onondaga county, New York, and graduated with honor as a regular physician about 1830. After practising medicine for several years, he turned his attention to dentistry, then hardly regarded as a science, and comparatively little understood as a distinct practice. In 1840 he founded the Baltimore College of Dental Surgery, the first of its kind in the world. Of this successful institution he was the leading professor and lecturer for twenty years, since its opening. His elaborate "Dictionary of Dental Science," 1849, and more extended work, "Dictionary of Medicine, Dental Surgery, and the Collateral Sciences," 1854, r. 8vo. pp. 800; the "Principles and Practice of Dental Surgery," 1839, eighth edition, 1838, 8vo, pp. 892, are but a few of the principal literary labors of his life. He also translated from the French several valuable medical works, and has steadily edited since its commencement in 1839—over twenty years ago—the *American Journal of Dental Science*.

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A limited number of advertisements will be inserted in the Vulcanite at the following rates:

| | | | |
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Address "VULCANITE," No. 640 Broadway, N. Y.

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## BOOKS RECEIVED.

The "Dental Register of the West" Edited by J. Taft and Geo. Watt. J. T. Toland, publisher and proprietor, Cincinnati, O. Monthly, at $3 00 per annum in advance.

The "Dental Cosmos." Edited by J. D. White, J. H. McQuillen, and Geo. S. Ziegler. Jones & White, publishers, Philadelphia, Pa. Monthly, $2 50 per annum in advance.

"The Southern Dental Examiner" Edited by J. P. H. Brown and Geo. J. Fouke. Brown & Hape, publishers and proprietors, Atlanta, Ga. Monthly, $1 00 per annum in advance.

"Cincinnati Dental Lamp." Edited by J. M. Brown, Cincinnati, O. Quarterly 20 cts. per annum in advance.

The "American Dental Review." Published by A. M. Leslie, St. Louis, Mo. Quarterly, $1 00 per annum in advance.

The "Dental Enterprise." Edited by H. Snowden, Baltimore, Md. Monthly, 50 cts. per annum in advance.

The "New York Dental Journal." Edited by Frank Norton. Quarterly, $2 00 per annum in advance.

"Revue Odontotechnique." Edited by C. S. Putnam, Paris, France.

"L'Art Dentaire." Edited by A. Preterre, Paris, France. Monthly, $5 00 per annum.

We would advise every dentist in the United States to subscribe for one or more of the above journals. Parties sending to us for dental goods, can enclose the price of subscription, and we will have either of the above-named journals forwarded as per order. Try them—it would be a paying investment; better than money at interest. Dividends declared quarterly and monthly are paying institutions. *We repeat*, try them and see.

# THE VULCANITE.

Vol. I. FEBRUARY, 1861. No. 4.

## TO OUR READERS.

In April last we set forth in a "prospectus" that we would undertake the publication of a Dental Journal mainly devoted to mechanical dentistry. This department of our profession is beginning to command an important position among the higher branches of Art. Isolated as many of the member of our profession are, and dependent upon their own ingenuity to enable them to overcome the many obstacles presented in the prosecution of this most perplexing vocation, it requires many years of experience to acquire a knowledge of the best manner of manipulating the various systems now in use. The practicability of disseminating useful knowledge through the medium of cheap publications has been abundantly demonstrated in every other department of Science and Art. We promised a quarterly journal containing 32 pages of reading-matter in each number. This contract we have faithfully carried out, having furnished over forty pages of reading-matter more than we promised; we have circulated 18,000 copies of our Journal the past year. The large number of subscribers on our list, and the liberal advertising patronage extended to us, have placed "The Vulcanite" upon a permanent foundation. It will be furnished to regular subscribers as heretofore for 50 cents a year, and to all Licensees of the American Hard Rubber company free of charge. Subscribers who wish to continue, and others who desire "The Vulcanite" sent regularly, will send us, on or before the first of May next, 50 cents in postage stamps, or money. Those of our subscribers or Licensees who have not received their full numbers, will please inform us, and the back numbers will be forwarded immediately. We have also a few numbers of Vol. 1, bound in calf, which we will furnish for $1.00 per copy. Our success in establishing a cheap Dental Journal has been far better than we anticipated; the encouraging letters received, and the willingness manifested by many to aid us by contributions to the pages of the "Vulcanite," have laid us under many obligations to its friends, and we hope to merit the continuance of their confidence. Concise communications on mechanical dentistry are respectfully solicited for "The Vulcanite"; they must be received two weeks prior to the date of publica-

tion to insure insertion. If any person having new and useful instruments, apparatus, or modes of manipulating, will send us a description of the same, we will illustrate them with appropriate cuts and *credit the contributor*. Cordially wishing all members of our profession a "Happy New Year," trusting that a brighter and happier future is in store for all, believing that as we carve our way up the "Hill of Science," increased satisfaction and real enjoyment will result from the knowledge acquired. And the fact that every additional truth discovered brings us closer to the source of all truth, should stimulate us to more vigorous efforts.

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## POPULAR DENTISTRY,

Is the title of a very neat little volume gotten up for free circulation among the people, by Dr. G. F. J. Colburn, Newark, N. J.

It is seldom that we have perused a work better calculated to do good. It sets forth in a clear, common-sense style, the necessity of early and constant attention to the Teeth. Under the various heads into which the work is divided, the reader gets a clear idea of each subject treated. Under the head of the "Origin and Progress of Dentistry," the writer gives a glance at the early history, condition, and practice of those engaged in operations on the teeth. "And from the fact that among Egyptian remains there have been found forceps made of copper, in the offices of those who followed the occupation of barbers, it may be inferred that, to these persons as for centuries after in various countries, the operations on the teeth were entrusted." "The mode of extracting, practised and recommended by some of the earlier practitioners, was, *to shake the teeth well*, and then remove them. Other's advised, the application of the hot iron, or boiling oil, to make them exfoliate; and although, during the lives of Socrates, Plato, Aristotle, Herodotus, Thucydides, Eristratus, Celsus, Pliny, Galen, and others, the healing art may be said to have made great advances, the state of dental surgery remained nearly the same. Little or no change, in fact, took place for the better, until about the time of the great anatomist, John Hunter of England, who published his work on the teeth in 1778. He has since been followed by numerous other authors and practitioners, both European and American, who, by their labors and researches, combined with anatomical and physiological erudition and mechanical skill, have elevated dental surgery to a high position among the arts and sciences of the present day."

### SOME OF THE PRINCIPAL CAUSES OF DECAY.

"It may be said to be, in most cases, the result of chemical action

produced by the decomposition of particles of food that collect or lodge in the interstices or depressions of the teeth while eating. Every one will therefore readily see how necessary it is to prevent all particles of food, or foreign matter, from remaining a sufficient time to produce decomposition."

### SUBSTANCES DESTRUCTIVE TO THE TEETH.

"All food in a state of decomposition generates an acid. Acetic acid (common vinegar), citric acid (lemon juice), malic acid, or the acid of apples in its concentrated state, also acts promptly; also muriatic, sulphuric, and nitric acids, although greatly diluted. Raisins also are injurious."

### DENTIFRICES—USEFUL AND INJURIOUS.

"Preparations for cleansing and purifyng the mouth should be free of all acids, and contain, as one of the principal ingredients, an alkali (such as enters into saponaceous substance) to neutralize the acid, and destroy animal and vegetable parasites that are secreted by the fluids of the mouth. It has been found, by microscopical examination, that the secretions of almost every person's mouth contain more or less of vegetable and animal life that will withstand the application of acid and astringents, and will only succumb to alkalies, which not only appear fatal, but a preventive to their formation."

### WHEN A DENTIST SHOULD BE CONSULTED.

"We have remarked that any one, on examination, could detect the fissures or depressions in the enamel. When these fissures present a dark appearance, which the brush or tooth-pick cannot remove, you may rest assured that decay in its first stages has commenced, and no time should be lost in consulting a competent dentist, who will, by throughly eradicating it, and filling the tooth with some suitable material, preserve it: no matter how small the cavity, or how little the decay, it should receive immediate attention. The smaller the cavity the better, if it can be filled.

### TARTAR OR CRUST UPON THE TEETH.—TREATMENT.

"In its soft state, this is of a creamy consistency and color, accumulating around the necks of the teeth, where they enter the gums; and, if allowed to remain any length of time it becomes hard and dark-colored, and almost imperceptibly pushes away the gum from the tooth, and, by insinuating itself between it and the tooth, deprives it of its support, and allows irritating substances to come in contact with the investing membranes, producing a looseness of the tooth, and inflammation with its accompanying results. This substance also causes a bad breath, and, by eating away the gums from the teeth, causes

them to present, oftentimes, an unsightly appearance. All these effects can be gaurded against by a thorough use of the brush and powder, and such dentifrices as are described in another part of this work."

CHILDREN'S TEETH—HOW TO BE TREATED.

"The same care and attention required for the preservation of the permanent teeth, are necessary for the deciduous teeth. Nature never intended that the teeth of children should be lost or removed by decay, but that they should remain to fulfil their offices until she should hang out her signal for their removal by causing them to become loose, and give way for the permanent set by the absorption of their roots. If nature had her course, we should seldom witness a case of irregular or deformed teeth or mouth, now so common."

IMPORTANCE OF EARLY ATTENTION TO THE TEETH AS TO PERSONAL APPEARANCE.

"About the sixth year, or soon after, four permanent molar or double teeth make their appearance. Let every parent remember this, as it is generally supposed that these four teeth belong to the first set, and that if they decay and are removed they will come again. This is a mistaken idea. They are permanent teeth, and if lost, will be lost for ever. No teeth that come after the sixth year are ever shed. During the eruption of the second set, the beauty and character of the child's countenance are completed. And everything depends upon proper care and attention at this time, to see that the teeth come with regularity and without being crowded. Should this be the case, the parent may expect a finely formed mouth."

CONSEQUENCE OF EARLY NEGLECT OF THE TEETH UPON THE VOICE OF ADULTS.

"Another very important reason why the teeth should, early in life, receive the utmost care and professional attention, is the effect they exert upon the articulation. The loss of a single tooth affects the utterance, and invariably produces a hissing or lisping sound, in articulating certain words containing the dental vowels, such as T, D, S, Q, and J. All public speakers, especially lawyers, clergymen, and others, should, as they value a correct enunciation and articulation, remember that the teeth were placed by nature to form a certain arch for the express purpose of giving force and purity of utterance. The modulation of the voice also is, in a great measure, dependent upon the shape of the mouth, and healthy condition of the teeth and their contiguous parts."

ARTIFICIAL TEETH.

"The use of false teeth is very ancient; although we have no reliable information in what country or among what people they originated.

There are accounts of their appliances in the works of Grecian and Roman authors; but they must have been of the rudest kind, and of far different make and material from those of the present day. It was not until the present century that anything like perfection and comfort was attained in the manufacture and use of artificial teeth. It is, in fact, but a few years since the principal material of which artificial teeth are composed, was either that of various animals, or human teeth, all of which answered but partially, as all such material was more or less liable to decay, and become offensive in the mouth. Then, again, the metal and other attachments were of the rudest kind, soon wearing and injuring the teeth to which they were attached. Within a few years this branch of dentistry has advanced with rapid strides, so that now, as we have remarked above, artificial teeth of the purest material and perfect adaptation to the mouth can be obtained, answering all purposes for which they are needed."

THE TOOTHBRUSH AND TOOTHPICK.

"Some little art is required in the proper use of the brush, although a simple operation; still, it should be applied in a manner best calculated to produce the desired effect. The aim should be to use it in the way best adapted to remove all extraneous matter from the crowns and sides of the teeth near the gums. In selecting a brush, it had better be rather stiff or hard, than soft, as there need be no fear of inflicting injury by employing such a one; it may make the gums sore for a few days, but the result will be that in a short time the gums will become toughened, and the friction will impart to them that rosy hue caused by a free circulation of blood, which is so coveted. Then, again, the brush; no matter how hard it is at first, by frequent use soon becomes soft, whereas if a soft one is selected, it soon fails to produce the required friction to cleanse the teeth and keep the gums in healthy condition. In selecting a toothpick, care should be had that it is composed of some elastic and tenacious substance, so that it can be readily inserted between the teeth. Collections of food and foreign substances will surely decay the lateral surfaces of the teeth that are in contact, unless this little instrument is thoroughly used, especially after eating. The quill is best adapted for a toothpick, and no one need go without one on the score of price, as they can be found in almost any drug or fancy store, already made and put up in bunches of twenty-five each, for about six or eight cents a bunch. The Brahmins of India, who are noted for their beautiful teeth, and the care they take of them, are in the habit of rubbing them while repeating their prayers, which is a number of times a day, with a soft stick split into shreds at the end, which not only acts as a brush, but as so many little toothpicks, effectually removing by its action all impurities from around and between them."

# COMMUNICATIONS.

(For The Vulcanite.)

## TAKING IMPRESSIONS AND MAKING METALLIC DIES.

BY DR. GEO. E. HAYES, BUFFALO, N. Y.

I PROMISED to send you a description of my mode of taking impressions, and making metallic casts.

In the first place, I provide an impression cup which will not melt easily. I prefer German silver. The outer rim, all round, is set at right angles with the bottom of the cup, and with the plyers is made to turn a little inward, so that the soft plaster, when pressed on to the jaw, instead of escaping readily, is turned inward and upward, so as to get as much pressure on the outside of the alveolar as in the roof of the mouth. The rim, where it crosses the palatal side of the cup, is sheared off so as to make a tolerably good fit when pressed into place.

With such a cup, an impression is taken in plaster, or plaster and silvex. When removed from the mouth, I cover the outside of the rim with plaster, so that it shall have as thick a bed as lies against its inside. When thoroughly hard, I place it over a gas flame, or spirit-lamp, plaster side down, till the metal sisses smartly on being touched with the wet finger. The cup rim, being enveloped in the plaster, prevents the circumference from expanding by the crystallization of the plaster, or from contracting by the escape of vapor; and if the process of drying has been stopped at the right moment, it will not have cracked, or changed its relative shape, so as to be at all perceptible. This dry cast is now to be used as a mould, from which to cast the metallic die. To do this, I provide a sheet-iron tube, a little tapering, two and a half inches long, and three and a half inches in diameter at the large end. I also require a pan of fine moulding sand, perfectly dry; and, for a metal, I combine antimony with tin in such proportion that a piece one-fourth inch thick will bend a mere trifle before breaking. The tube is placed in a pan of sand, small end down, with just sufficient sand in the bottom to raise the mould when placed in the tube, so that the top of the plaster will just reach its centre. Dry sand is then filled in, all around the mould to its upper edge, and any particles which may have fallen on the face of the model are removed by means of the blow-pipe. The melted metal is now poured in till the tube is even full: now with a wooden stick keep the surface in a constant motion, and, by punching, prevent any portion of the metal on the surface from settling. Follow this up till the metal becomes thick and plastic, and, if steam or gas continues to escape, insert a spent match through the metal till it comes in contact with that part of the mould from which the gas issues, and hold it there till the metal can no longer be kept mobile by means

of the wooden stick. Then instantly, with the smooth face of a heavy hammer, press down the granulated metal to a smooth surface. When sufficiently cool, remove the sand and plaster mould, whitewash the face of the die with chalk wet with water, reverse it over the spirit-lamp till the metal will siss smartly. Then fill the other half of the tube with molten tin, not too hot. In this way a perfect set of dies will be formed. There will be no shrinkage except that from the cooling down of the metal after it has become solid; which is very slight, and not too much to give a close-fitting plate. From these dies I usually cast another set to use while bringing the gold plate into form, and then give the final finish with the die cast in the plaster mould. Although I have used this process constantly for the last fifteen years, I have never published it, but have always intended to do so. In the meantime, however, it has been freely communicated to those seeking information, as very many will testify on seeing this statement. There are two other processes which I have been using the same length of time, and which I will take this occasion to make public. I refer to the mode of banding plates, and preventing them from warping while being soldered. I believe they are both original, and they give perfect results.

*To Form and Swage a Band.*—The plate having been fitted to the mouth, and the edge filled to the desired width, I first cover the plate with a rim of wax, and carve it into the desired form of the teeth and gums, taking notice that the lips are properly filled out, and that all the features harmonize; I then draw a mark, all round this wax model, just where I wish the band to cover, then cut away all the wax except that part representing the band. If the plate is a very deep one, I fill up partly, also, the roof cavity with wax, to facilitate the parting of the castings. Then place the plate upon the original die, and place the die in the tube just as it was cast; then cover the face of the die and the plate with plaster half an inch thick. When set, the die can easily be removed from the tube, leaving the plate adhering by the wax to the new plaster mould. With the blow-pipe, direct a flame upon the inside of the plate till the wax has softened; then remove the plate, pick out the wax, and dry the mould as directed in the former process. Cast a die from block tin. Whitewash the face and cast upon it a counter die in the same metal. Now one might think that these castings would be dovetailed together; and so they often are, partially, but they always can be separated by driving a wedge or cold-chisel between them from the back side of the castings. The metal, being ductile, will give sufficiently near the back end of the plate, and may even be pulled a little out of shape; but in front, and generally on the sides, the form will be perfectly preserved. To stamp a band from these dies, cut a straight strip of plate, of proper width and length, hammer either one edge or the other so as to give it the proper curve, anneal,

and place it within the female die. A little tact will enable any one to get the other die into place, and bring the whole band at once into perfect form. If the moulding has been properly done, the original plate-die will fit into this casting. The plate, therefore, may be placed upon it, and with a light blow, brought home perfectly against the band, just where it is intended to be permanently soldered. To solder on such a band, I first catch it at a few points on the edge with solder, then reverse the plate, and lay in plenty of solder, all round, between the band and plate, and with the blow-pipe blow it all down solid; forming, as it were, a three-sided wire, possessing great strength and stiffness, and which may be filed away very considerably, if necessary. Such a plate, with the teeth properly ground and fitted into the band, and the spaces filled with a cement of colored wax, may be worn for years without food or saliva getting into any of the interstices, or in any way becoming offensive. To prevent such a plate from warping I let the band project back of the plate a mere trifle on both sides; then cut a wire with proper shoulders, which will just drop in between the projections; the whole then is covered with plaster and sand, in any of the usual methods. This brace effectually prevents the back ends of the plate from approximating together, and when cold they will be found to occupy their original position. I find it a rare thing that any alteration is necessary afterwards to make it fit the mouth as perfectly as it did when first swaged.

P. S.—I have known of more than one dentist, to whom these processes have been communicated, afterwards claiming the whole credit; but as this seems to be a kind of *professional* failing, perhaps I have no peculiar cause for complaint.

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(For The Vulcanite.)

## TAKING IMPRESSIONS, AND MAKING METALLIC DIES.

BY DR. C. H. ECCLESTON, OXFORD, N. Y.

Seeing by your well-filled journal that many Dentists have given their modes of taking impressions of the mouth and getting up dies for swaging plates, I am led to attempt the same, thinking perhaps that my way might be new to some, and practical for new beginners. A practice of twelve years has convinced me that there are many things in dental practice that have not been improved upon to any advantage except to fill the pockets of pretended inventors; on the other hand there are many great improvements in our profession which speak well for the age in which we live. The starting-point in all mechanical den-

tistry for supplying the loss of the teeth, as all are aware, is a perfect impression of the parts to be covered by a plate; and yet, a perfect impression of the mouth, as usually taken, in many cases will not insure a good fit of a metallic plate. Why? Because the plate is a resisting substance, while the wax or plaster is non-resisting when used. Now, in order to take a good wax impression, take an impression cup of the required size, and build up wax or Gutta Percha on the palatine surface, leaving the wax not very soft; then place the cup, not the wax, thus arranged in the mouth, and press it up so as to fit the whole roof of the mouth as far back as necessary. After removing the cup and wax, cool the wax by placing it in cold water. Then examine the mouth and see if it has a hard ridge through the centre; if so, cut away the wax in the cup one eighth of an inch in depth, and as wide and long as the hard portion is in the mouth. Now take more wax, that is quite soft by being placed in hot water or held over a spirit-lamp, and cover the wax in the cup about one fourth of an inch thick, filling up the other portions of the cup as much as necessary. Then place it in the mouth quickly and press it gently to its place. Remove with care, and you will have a very finely shaped impression; the pressure of the cold wax in the cup being the hardest on the soft parts of the mouth, the result will be, you will have a better impression than can be got in any other way. Plaster impressions I prefer in many cases. Yet a die made from a plaster impression in the ordinary way will not insure a good fit if one portion of the mouth is harder than the other. To remedy this, I mix some plaster very thin, and before I varnish my model, and while it is wet, I take the pencil-brush and add a thin coating of plaster over that part of the cast representing the hard parts of the mouth, so as to raise the plate more at that point, and allow it to press harder on the soft parts, and then the plate will not tilt about.

In getting up my metallic dies, I use zinc for the male and lead for the matrix. I have used nearly all other metals, but find the above the best in all cases. I use common moulding sand saturated with sweet oil so that it will pack together well; it is always ready, and is good a month or two. Where the draft to my model is good, I use a band or rim of sheet-iron for my moulding flask, placing it over my plaster model, and then pack in sand till it is full. It takes but little, as the band does not require to be more than one inch larger than your model, and high enough to give you the length of the die; then turn over the band with care, and carefully remove your model, after having given it a few light taps with a small hammer, and if you have a good impression in the sand it is ready for the zinc. In case of undercut models I use Hawe's Sectional Flask. Pour in your zinc carefully while it is quite hot, so that it will run free; when you have poured in enough, and before it gets hard, take a large nail and insert it into the top of the zinc to hold it by when

you get ready to dip your die in the lead. After your die gets *cold*, melt your lead in a suitable cup, and stir it until it begins to grain; then dip your die quickly, and you are all right.

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MEDINA, *Dec. 1st*, 1860.

DR. B. W. FRANKLIN:—*Dear Sir*,—Some time ago we received a letter from you asking our opinion as to the merits of the Vulcanite Base for artificial teeth. The letter was mislaid, and consequently not answered. Now, in answer, we will say that its utility as a base for artificial teeth cannot be doubted. We have used it in our practice over a year, and have been uniformly successful in its use. We do not remember to have had a failure in a single instance. We put up all kinds of jobs, from one tooth to a full set, and our customers are delighted with it. We think many dentists are not pleased with the rubber base, because they do not well understand the science of putting it up. But in the hands of a skilful workman, we think there is nothing that is better adapted for an artificial denture than the vulcanite base.

[Hear what some of our customers say.]

I think the vulcanite teeth are better than any other kind in use; they are lighter, easier to the mouth, easier cleaned, more cleanly than any other kind of teeth; and the more I wear them the better I like them.

ALONZO ANDREWS.

My opinion is, that there is nothing sweeter, easier, or better in the mouth, than the vulcanite teeth. Gold or any metallic teeth are just as inferior to them as a copperplate would be inferior to gold.

REV. J. G. MILLAR.

If I could not again be supplied with such a set of vulcanite teeth as Dr. Belding & Son have made for me, I would not sell mine for a million dollars. They are better than any metallic plate ever made.

SILAS KNAPP.

All of our customers speak in just such terms of the vulcanite base, and therefore, as our customers all agree on that point, we shall not hesitate in recommending it as the very best thing for the purpose ever invented. We are very truly your friends, A. V. BELDING & SON.

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WABASH, IND., *Jan. 10th*, 1861.

DR. B. W. FRANKLIN:—*Dear Sir*,—I have had but little confidence in patents in general, and rubber in particular, but I obtained a vulcanizer some time ago and have been experimenting, and am satisfied that the vulcanite rubber base is far superior to gold or silver, and perhaps in certain cases it may be superior to any other style of work. I

put up a temporary set of plain teeth, which have been worn seven months in a mouth feverish and acidulated, where silver could not be worn, and yesterday I examined the rubber-plate and find no change whatever; on the contrary, it is sweet and clean. Respectfully, &c.,

JOHN BECHTOL.

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COLUMBUS, IND.

DR. B. W. FRANKLIN:—*Dear Sir*,—I am well pleased with the vulcanite rubber work, and would recommend it to all of the profession.

J. F. CANINE, D. D. S.

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LOUISVILLE, KY., *Aug.* 21*st*, 1860.

DR. B. W. FRANKLIN:—*Dear Sir*,—We like the vulcanite work better and better the more experience we have in working it.

Yours truly, FITTZ & FULTON.

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(For The Vulcanite.)

## DENTAL ETHICS?

BY DR. J. C. HOWELLS, OF MADISON, WISCONSIN.

THE December number of the "Dental Register of the West" contains an article from the pen of J. A. Murphy, M. D., entitled "PATENT INSTRUMENTS," in which the writer takes broad ground against the patenting of Surgical Instruments by members of the "regular medical profession." All such as offend in this particular are charged with "disgraceful ignorance or fraudulent avarice;" with being "levelled with the man without education;" with being "ignorant of the history of his profession;" with being "disreputable, unprofessional, and opposed to the acquirements of all who attain to the position of gentlemen, good physicians, and scientific men;" with being "sheer adventurers, travelling mountebanks, and persons of the most shallow pretensions;" as "wanting in the tone, spirit, and manners of a gentleman," and are ranked with the class of so-called Eclectics, Homœopaths, Spiritual and Water Doctors; and consigned without mercy to the companionship of "that class of advertising scoundrels, who fill the newspapers with lying advertisements, and the swindlers who practice all systems, according as their patients may desire." He tells them that they are "quacks, and that quacks they must remain," and coolly informs them that they "can have no position in the regular profession, or be acknowledged in medical society as gentlemen, if they procure a patent for an instrument;" there being, in his judgment, "no practical difference or distinction between those who patent a pill, a balsam, or a plaster, and those who patent an instrument."

In justification of this vigorous diatribe against the unfortunate patentee of a surgical instrument,—unfortunate in a double sense, for aside from the disgrace attaching to him, "his instruments," as the writer admits, "meeting with no favor in the regular profession, are soon forgotten or are withdrawn from public notice,"—the reasons are threefold. First, that "the medical profession is a "liberal and beneficent one." Second, that to patent an instrument "is the habit of quacks of all kinds;" and, third, that by so doing "the profession, which requires such a high order of preliminary education, and such long and incessant study for its mastery is brought down on a level with the everyday trades and callings of life." The authority quoted is the "Code of Ethics" of the American Medical Association, art. 1, sec. 4, commencing thus, "*Equally derogatory to professional character is it, for a physician to hold a patent for any surgical instrument or medicine, etc.*"

We are willing to admit to a certain extent the claim here set up for "liberality and beneficence." The early history of the "healing Art" doubtless had its origin in the finest sympathies of our nature, and was kept alive by the active and disinterested benevolence of the human heart. This was its primal history, and the services and virtues of the "medicine man" were distributed freely and without price; but, by degrees, as their power was acknowledged and their remedies sought after, they assumed an air of mystery and reserve, adopted cabalistic signs and characters, and endeavored to invest the decoction of a few simples with the secrecy and importance that attend the midnight labors of the alchemist. But in proportion as intelligence diffused itself throughout the masses, the dignity and exclusiveness of the medical practitioner vanished, and the standard of the profession of medicine is fast "coming down," in this day, to what our writer so much condemns, viz., "a level with the every-day trades and callings of life." Now true medical science accepts all the remedies within her reach, of whatever school, and applies them to the relief of suffering humanity. In strict keeping with this desirable reform, a change is going on with regard to the "liberal and beneficent" character of the profession of medicine—for now a physician, as he advances in reputation is not near so "*liberal*" *in his charges* as in the early history of his practice, while the "*beneficence*" resulting from his labors is in exact relation to his success in the treatment of diseases. This "*liberal*" *increase in compensation* as the M. D. advances in reputation, though it by no means indicates a corresponding increase in the "*beneficent*" *results of his practice*, is a *monopoly upon his part, and bears just as injuriously upon the interests of the public, and is just as adverse to the* "LIBERAL AND BENEFICENT" *character of his profession, as is the monopoly accruing to the Patentee of a* "PILL, PLASTER, *or* SURGICAL INSTRUMENT." In

either case it is the result of study, observation, and experience, and if the public are in any degree benefited, it is right that the parties conferring the benefit should be remunerated; the simple difference is, that the one embodies his study, observation, and experience in an instrument; while the other clothes them in words of caution and advice, or reduces them to paper in words and signs as dead to the comprehension of his patient as the language which they represent, and which is, alas! too frequently *ominous* of the benefits to be derived.

It is the habit of some to prate largely about the "learned professions," and which in their ignorance they presume are confined to "Law, Physic, and Divinity." The time was, when all the available knowledge of the world was monopolized by these professions; but times have strangely altered, for there is hardly a business in life which if followed with a due recognition of the laws that underlie it, may not with truth be called "learned." It requires just as intimate an acquaintance with the *anatomy* of a horse's hoof on the part of the *blacksmith*, in order *properly* to *make* and *adjust* a *shoe* with due regard to the *comfort* and *safety* of the *horse*, as it does on the part of the *physician* in the *treatment* or the *amputation* of the *human foot*. The objection, that to patent an instrument is "the habit of quacks of all kinds," must, in order to be of any force, have a more extended application. It is the habit of quacks to dress neatly, to frequent fashionable resorts, to attend church, to contribute liberally when called on, to deport themselves morally, and in fact endeavor to establish a reputation for integrity and ability, and thus command the confidence of the community. But no one, not even the most inveterate of the "*regular*" M. D's, would think of ignoring the practice of these virtues so essential to success in life, because their observance "is the habit of quacks of all kinds."

We have been thus lengthy in reviewing the article in question, in order to call the attention of the dental profession to the extraordinary and unqualified editorial endorsement which it has received in the "REMARKS" which follow it; and as so much stress has been laid upon the "*Code of Ethics*," we were induced to adopt the *query* "DENTAL ETHICS?" as the heading of this article. To follow closely the "REMARKS" in question, would be to go over a great portion of the ground; we will therefore confine ourselves to the discussion of those points raised that have a direct application to, and immediately interest, the Dental profession.

Assuming that "the principles alluded to in the above article are as equally applicable to each department of medical and surgical practice as to the whole, and that the same arguments are operative in their application to the practitioner of a specialty as to the general practitioner," the editor addresses himself to the consideration of the sub-

ject as applied to the practice of dentistry, as follows: "The dentist who advocates patents for anything pertaining to his profession arrays himself against the opinion and judgment of the best and most intelligent medical practitioners of this and other countries," etc.; and the question is triumphantly asked, "What would have been thought of Jenner if he had hedged about the discovery of vaccination with a patent, so that it could not have been used without paying him a bonus? though he had expended time, money, and labor in studying those things which brought about the result." The grounds on which the medical profession repudiate patents, we have already discussed; but with regard to the question here raised, it may be sufficient to say, that there are doubtless some inventions and discoveries that in themselves are of such immediate importance to the welfare of the human family, that every consideration of *duty and of humanity* indicates the course to be pursued, even though it should have cost the discoverer or inventor "*time, money, and labor.*" Jenner is an illustrious example of this kind; yet we question very much if even the author of "REMARKS" would deny the validity of his claim upon the government for compensation had he seen proper to make one. The French government have embodied a wise provision in their patent law, and that is, that in all patents granted under their law the government reserves the right to purchase at a *fair valuation* the invention or discovery, provided that it is of *manifest utility* to the public. Such a provision, incorporated in the patent laws of the other governments of the world, would quite destroy what little force remains in objections of this character, for then every discovery of real value to the community would be communicated to the public, they enjoying its benefits, while the inventor would not go unrewarded.

The question is *sapiently* asked, "If a person spends his time, money, and energies, aye, even racks his brain, and produces nothing, how shall he be paid? and who shall do it?" and seems designed to foreshadow the following: "The history of dental patents shows a fearful record of disappointed and broken-down inventors, one that should, we think, be quite sufficient to discourage any one who contemplated procuring or dealing in dental patents. Three-fourths of the instruments or processes for which patents have been issued are without merit, and consequently require a great pressing to make them amount to anything. Inventors usually see more in their inventions than any one else. Not one in twenty who obtain dental patents ever makes money by them, and every one who does, loses cast with his profession."

Now if this is really the case, what is all this outcry about in relation to dental patents? and why do our friends get so unduely excited in relation to the matter? Who proposes to pay the man who "spends his *time, money, and energies, aye, even racks his brain, and produces*

*nothing?*" What has the "*fearful record*" *of* "*dental patents*" *and of* "*broken-down inventors*" got to do with the subject? What if "*three-fourths of the instruments for which patents have been obtained are without merit?*" How can that affect the case? What if "*Inventors see more in their inventions than any one else?*" And what if "*not one in twenty who obtain a dental patent ever make money?*" What, we ask, has all this got to do with "*professional ethics?*" Has it come to this? Is the standard of *dental morality* to be *measured* by the *success* of the undertaking, and *raised or lowered* in exact accordance with the *rise or fall of patent stocks?* In short, is the exploded dogma that "*the ends accomplished sanctify the means used*" again to be inaugurated, and serve as the *ethical platform* of a "*liberal and beneficent*" profession? Indeed, one would think so, judging from the foregoing, and if collateral evidence were wanting, the manner in which one half of the old saying "*that good poetry is always parodied and good patents are always pirated*," has been *more than demonstrated* in the action of the *dental profession* in the matter of "*Continuous Gum*," "*Vulcanite Base*," etc., etc. Truly, in view of all this, we again repeat the *query* at the head of this article, "DENTAL ETHICS?"

The claim that all improvements relating to the practice of dentistry should be the common property of the profession, would, if allowed, have a tendency to retard the rapid advance that we are now making in dental science. "The hope of reward sweetens labor" and stimulates invention. The *honor* of discovery, if that were deemed a sufficient reward, is always *divided between so many contending claimants* that nothing short of the *patent record* is left us whereby we can establish our claims to originality and priority of invention. Again: were all inventions to be common property of the profession, it would in the future, as it has in the past, lead to abuse and fraud upon the community. Take, for example, the use of Amalgum for filling teeth, an article at once cheap, convenient, and plastic. The country was filled with charlatans, professed dentists, who brought discredit upon the profession and great damage upon the public by its indiscriminate use. As another instance, take Slayton's "Gutta Percha Base," which was *base* enough in all conscience! why, for the paltry pittance of five or ten dollars travelling agents could be had to furnish instructions, material, etc. What was the result? the country was flooded with artificial dentures of the most inferior quality, resulting in disgrace to the craft, and a gross fraud upon the community. Had it been possible to have secured by "letters patent" a monopoly in the use of Amalgum for filling and Gutta Percha as a base for artificial teeth, with office rights selling from fifty to one hundred dollars each, dentists would have been more cautious in taking hold, and outsiders would not and could not have rushed in with such eager haste; thus the credit of the

profession would have been protected, and the public secured from harm.

The "Cheoplastic Process" is a case in point; had its introduction been unsecured by "letters patent," its cheapness would have attracted hundreds to its use, and we all know with what result. Its monopoly, however, and the price at which it was held, checked its use, and afforded the profession time for its examination and analysis. Other instances might be cited, but these will suffice.

The closing paragraph of the "REMARKS" under consideration is as follows: "The chief moving inducement in procuring and dealing in patents is gain, it is for self, and not for the good of mankind; and in this respect it is greatly at variance with the profession of medicine in all its branches, the glory of which is that it has for its chief and great object, good to humanity, relief from suffering, deliverance from disease, that fell destroyer of the human kind."

For the argument's sake, let us concede the positions here assumed. How can "dealing in patents," even for "gain," be construed, in view of their relation to many branches of mechanical and operative dentistry, as "at variance" with the "*glory*" and "*object*" as above stated? Take, for example, a patent for a material for filling teeth, that shall possess all the virtues of Gold, including its cost, with only this difference, that the operator can introduce the filling with much greater *personal ease and comfort;* in fact, suppose, that by any appliance, both "*new and useful*," you are enabled to *facilitate his work*, though you *add nothing* to the *comfort of the patient nor diminish the expense attending the operation*, by what *rule of right*, or by what "*code of ethics*," unless, indeed, it be "DENTAL ETHICS," could he claim that you should *surrender, without compensation for his use and benefit*, an invention that became yours by virtue of discovery? The assumption is preposterous: as well might he claim an equal division of property, or demand that his office should be warmed and lighted without cost to himself, as it would materially add to his comfort and increase his facilities for dental manipulations.

We may refer to this subject again: in the meantime we would request the profession, in view of all the facts, to ponder the query, the "*what is it*" of "DENTAL ETHICS?"

## PLASTER IMPRESSIONS AND OTHER THINGS.

The subject of taking impressions of the mouth has of late provoked much discussion among the members of the dental profession, and this fact is evidence that it is an important part of the manipulations connected with the construction of artificial dentures. This is true without any reference to the mode or the materials entering into their composition. We do not propose to divide the subject into "first," "second," and "third;" but under this general head we shall give our views of what to us appears to be the best mode of proceeding to obtain the very best results, without regard to the time required, or the expense incurred. It should be the aim of every one in our profession to be satisfied with nothing short of the highest perfection possible. If all were determined to excel in the profession, our progress would entitle us to, and indeed would command, the regard and esteem of each other and of the whole community. We have got to rid ourselves of the idea that the "job was worth the price received for it;" *inadequate compensation for dental services is no excuse for imperfect productions.* We incline to the opinion that this excuse is urged in many cases to cover a "multitude of sins;" and that, instead of not being paid enough, they really received more than the "job" was worth, and this excuse was made to prevent the exposure of an inability to do better, and is good evidence of a lack of professional integrity. What would be thought of a physician that administered one class of medicines to paying patrons, and another to those unable to pay his regular charges. The physician and dentist are justified in varying their charges so as to meet the exigences of their patients. This can be done without compromising the dignity of professional character,—on the contrary, this course would elevate a man in the estimation of the public. But, whatever the charge, the services should be equally, impartially, and faithfully performed. The better class of patrons may require, and perhaps should command, more of the time and attention of the operator. The others can well dispense with this, and would cheerfully do so, in consideration of pecuniary advantages, extended to them. The "rule" adopted by many individual practitioners of parading the "Fee Bill" to our minds is as absurd as any other kind of *advertising prices.* From one dollar to five means five dollars if I can get it, and one dollar if I can't get the five. All this kind of manœuvering savors strongly of quackery and fraud, and should be abandoned. We do not complain of advertising one's business; on the contrary, we believe it a duty to make all reasonable efforts to secure business, and this perhaps can be best accomplished by advertising through the public press. Ex-

perience proves clearly that advertising prices for dental operations at any given figure would be as consistent as for a house-builder to agree to put up houses without specifying the size or materials to be employed in their construction. A deviation in prices for mechanical as well as operative dentistry is not only proper and necessary, but is absolutely indispensable to an honest discharge of professional duties to ourselves as well as our patrons. It is often worth twenty-five per cent. more to perform the same operation for one patient than another, and this difference can not be provided for in the onset; it is only developed as the work progresses, and should be compensated for after the operation is completed. If our patrons have confidence in us, and we do not abuse it, there will be little ground for disagreement after our services are rendered. Our first anxiety, when called upon to undertake the responsibility of constructing an artificial denture, is to be sure we have a proper kind and quality of plaster for the impression. The difficulty in procuring plaster that, under all circumstances, is what is desired, and indeed indispensable to success, has been experienced by all. We have used plaster from the various mills, prepared "expressly for dentists," that would set in some cases in four minutes, at another time in fifteen, and again it would not set at all. We have visited these works, and endeavored to explain to the proprietors the wants of the profession; they say they understand our wants, and are lavish in their expressions of appreciation of our troubles, and unhesitatingly promise to bring forth the desired quality; but, alas! "how uncertain are all things here below," the very next sample sent us was half an hour in setting, and, when set, was worthless: at last we have come to the conclusion that the profession will have to prepare their own plaster. The advantages to be gained are, that we can always have the same quality without any reference to where or of whom obtained.

We have demonstrated several important fundamental principles and peculiarities of plaster, and we are perfectly satisfied that the finer the plaster is ground, all other circumstances being equal, the better for impressions and models. We therefore recommend to every dentist to furnish himself with a six-inch wedgewood mortar, and grind his plaster so as to pass it through a very fine bolting-cloth sieve. We have found, by subjecting plaster to 212 degrees by the thermometer, for one hour, stirring it occasionally to facilitate the expulsion of the moisture, it will uniformly set in from four to five minutes, which is soon enough, except in a few very difficult cases; where it is desirable to have quicker-setting plaster, a little more time can be given by continuing the heat upon it. A too high degree of heat renders the plaster chalky and worthless. The following cut, figure 1, represents a simple apparatus for the purpose. It consists of a tin vessel, A, for the plaster, enclosed in another tin vessel, B, containing oil,—a common cabinet-maker's glue-

kettle will answer a very good purpose. The object of the oil around the dish containing the plaster is that, by its use, we can carry the heat to any degree desired below 500. By this simple apparatus we have shortened the time of the setting of plaster from thirteen to four and one-half minutes; in the time above mentioned, a common thermometer will be required, imbedded in the plaster, to determine the heat. After we have obtained, or prepared, our plaster, so as not to be under apprehensions in regard to the time required for its setting, we select an impression cup, that in form is reasonably adapted to the mouth, with a narrow rim projecting from the plane of its bottom, with the front of the rim cut out as in the cut, figure 2. (We are indebted to Dr. A. Westcott, of Syracuse, for this invaluable idea.) We now soften wax, by dry heat, and take the impression as perfectly as possible. After removing the cup from the mouth, we place it in cold water, for the purpose of hardening the wax. We then take a warm knife and depress the surface by cutting it down about one-eighth of an inch, being careful to follow all the inequalities of the surface as nearly as possible, and cutting the wax entirely out in the space in the rim, and trimming off any surplus projecting over the rim or posterior portion of the cup. We then score over the entire surface of wax, as seen in the cut, figure 3; by this method we have a wax form in the cup corresponding in shape to the mouth, and, with the least possible quantity of plaster, can take a perfect impression of the most difficult cases. In case there is any overhanging of the ridge, or prominences at the posterior part of the mouth, the wax projecting above the rim of the cup will yield sufficiently to allow the thin lamina of plaster to break and free itself at all the dovetailing points of the ridge, and at the same time hold any fracture from becoming detached. These fractures can,

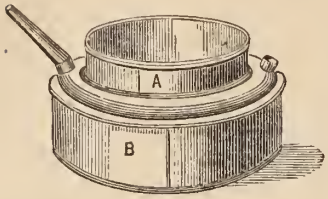

FIG. 1.

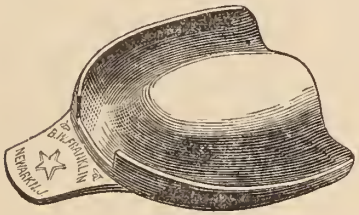
FIG. 2.

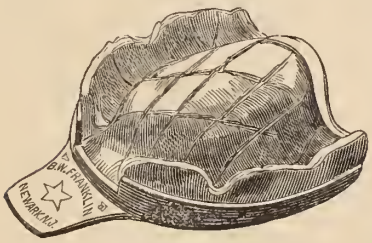
FIG. 3.

by pressing against the outer sides of the wax, be brought together in the most perfect manner. There are many reasons why this is the most reliable method of obtaining an impression. The wax being so nearly the shape of the mouth, it will carry the plaster against every part, preventing blanks or other imperfections on the surface of the impressions. Another advantage is, there is less plaster employed, and consequently less expansion and change of the surface. Another advantage is, any surplus plaster will escape through the space in front, preventing the unpleasant consequences of filling the mouth of the patient with loose pieces of plaster. The method practiced by many, of filling the cup with plaster only, and depending upon such impressions for perfect work, must have resulted in many imperfectly-fitting plates. For instance, in a mouth where some of the teeth have been extracted for many years, and the ridge at these points has become perfectly absorbed, while other portions, where the teeth have been more recently removed, are nearly their usual thickness. If we should use a cup full of plaster, it must be obvious that at those points where the ridge was thinnest a greater quantity of plaster would naturally settle, and consequently a greater expansion and closing together at these parts. The annexed cut, figure 4, is a plaster model from a wax impression, the brass standards, A A, projecting from the ridge, were pressed into the impression before filling for the model; at the moment the plaster had set sufficiently to remove the impression the distance between the standards was carefully measured. In thirty minutes they had spread asunder by expansion the thirty-second part of an inch, or equal to two thicknesses of ordinary No. 28 plate. This expansion of the model and the contraction of the space in the plaster impression by the same law of expansion must necessarily derange the adaptation of the plate, no matter with what care the metallic dies were gotten up. We have demonstrated to our satisfaction, that the expansion in certain qualities and kinds of plaster is very considerable. Dr. T. L. Buckingham, of Philadelphia, in an article published in the December (1859) No. of the "Dental Cosmos" page 238, demonstrated by careful experiments, that a block of plaster five inches long, by two inches square, expanded with a force equal to thirty pounds to the square inch. He says, "I had no idea that the force of the expansion would have been as much." We have at length discovered the law by which

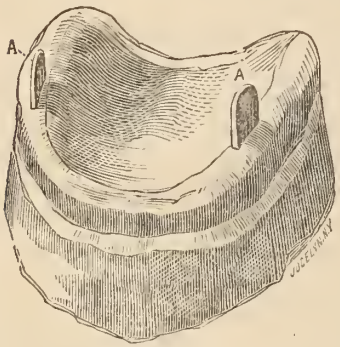

FIG. 4.

this expansion is governed, and also the means whereby its effects can be rendered harmless, so far as our profession are concerned. In prosecuting our experiments, we had discovered that the expansion was unequal in a square block. The lateral expansion being considerably greater than in a perpendicular direction. This phenomenon led to the conclusion that the mass must be crystalline in its structure, and that the crystals arrange themselves perpendicularly. We were aware that the cohesive force in most solids was an exertion of crystalline forces, but in case of plaster the cohesion of the crystals, was so great that their peculiar forms could not be traced by examination of its fractured faces. We have demonstrated that plaster when mixed with water, becomes (so to speak) a bundle of six-sided crystals, of a little less than a sixteenth of an inch in size, and consequently each plane of the sides of the angles are one ninety-sixth part of an inch, symmetrically arranged, and beautifully homogeneous in form and structure. It is most wonderful, yea, marvellous, that a mass of quick-setting plaster can arrange itself into these beautiful crystals, in such a brief space of time, each crystal having an independent existence, and as perfectly formed as though ages had been required for its production. We have had the satisfaction of witnessing their formation by the aid of the microscope. The following cuts represent ordinary plaster wet with water, crystalized, the longest of these crystals as seen in the cut, are

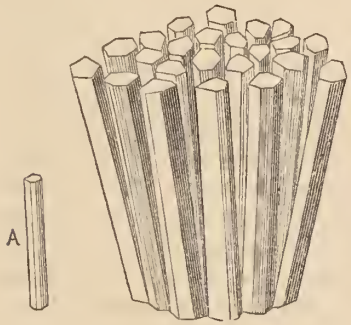


Fig. 5.

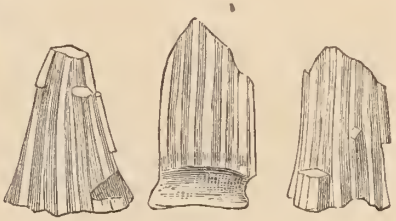

Fig. 6.

magnified twice their real size and length. In our next number we shall give our readers the means employed to disengage these crystals, and the benefits to be derived by our profession, from a knowledge of this law of the crystallization of plaster.

B. W. FRANKLIN.

[*To be continued.*]

## DENTAL PERPLEXITIES.

Paper read before the New York City Association of Dental Surgeons, January 23d, 1861, by Dr. W. B. Hurd, of Brooklyn, E. D., on "Dental Perplexities."

Mr. President :—Having been the originator of this new feature in our society, I could have wished that for the present this should not have been my share of the undertaking. It seems, however, that it has become a fashion, a conventional fashion, that he who would be the means of introducing a rule, no matter how valuable, no matter how well suited to the minds of others, must be the first to tax himself in its support. These remarks are not made by way of complaint, but simply as a reminder of the singularity of the compliment conferred, and the carrying out of the old saying, "he that will dance must pay the fiddler." I am aware that these remarks do not comport with the requirements of this new by-law, and I shall therefore ask your attention to a subject with which I know you are all familiarly acquainted; one that I know to be your daily visitor, and one I doubt not may claim your attention frequently at the still hour of midnight. It will therefore need at my hands no formal introduction, a simple announcement of its name will be sufficient—*Dental Perplexities.* It appears to me, sir, that of all the professions that were ever introduced for the benefit of mankind, the dental profession, for its annoyances, stands paramount. The student as he traces the necessary pages in his profession can but have some forebodings of the future, he can but see that so many pages could not have been written, so many specific rules made, and so much advice given, without being intended to meet difficulties. The assiduity and anxiety of his preceptor is before him, he witnesses the thinned ranks, the careworn countenance and blanched cheek of the changed sage in the profession, but young ambition whispers, "you are not as these," regilds the old picture and points to a greater prize. As he urges his way in his profession, he finds here and there landmarks of which he has been apprised, he discovers the difference between experience and inexperience, theory and practice, the poverty of language to convey ideas in the difference between his conception and the ideas of the author he has studied intended to convey, the unaccountable disposition of many to palm off strange fallacies for facts, and the utter impossibility of carrying into practice what many have been taught, as simple and easy, and consequently the great necessity of a sound and discriminating judgment of his own to determine the genuine from the false, knowing that his patients hold him, and not the author he has studied, responsible for his acts; he also discovers the weakness of man in trying to cope with nature and that

man's best judgment frequently leads to the worst error. Onward, and poor human nature with its ten thousand frailties, stands ready to meet him, there an unreasonable fault, a dishonest act, a pretence, a demand, a hint, or a slander designed to undermine the fair character he has endeavored to sustain, and by fortitude and perseverance, having arrived at the acme of his early ambition, a full practice, he discovers that it has brought with it great perplexities, and what was once to him an annoyance, viz., a leisure hour, would now be hailed with delight. He opens his eyes to the full consciousness that it is not "all gold that glitters," that what his early ambition taught him was but a dream, that his life instead of being a life of pleasure, was one of sacrifice, his eyes and ears to be the constant witness of pain and suffering; shut up within narrow walls, not, 'tis true, to breathe the damp air of a dungeon, but worse; the pestiferous exhalations of decaying humanity, shut out comparatively from the world, a novice in its affairs, a stranger to its ways, an article to be visited in season and out of season, required to do all kinds of impossibilities, obliged through policy to be polite in time of insult, his time of no value, expected to sit and listen with all the attention of a child to tales of horror that never occurred, to wonder with them at their fortitude in younger days, when some unfeeling dentist, in some inhuman manner, wrenched from their jaw a tooth with six large prongs, to hear the characteristics of the family from the great-grandfather down to the dear little child that stands skulking behind its mother waiting for a higher bid to have a tooth extracted, while the man of business sits waiting impatiently in the chair with an occasional look at his watch wondering if his time agrees with yours; or obliged to listen to the dulcet strains of some nasal-twanged maiden, who has come to inform you that "she, together with her relatives and a majority of the sewing society connected with the parish, have arrived at the conclusion that you have made a great mistake in her teeth and that an alteration is highly necessary;" or to some gruff old man that expected you to outdo his maker, and is ready to pronounce you a humbug and demolish the whole dental profession because he cannot bite a tenpenny nail in two at his pleasure; or to some avaricious *roue* whose native depravity has prompted him to palm off a lie, and rob the dentist, rather than pay the charge of repairing the result of his own carelessness; or listen to the application of some smiling lady that has dropped and broken her teeth and sprung the plate, and applies at sundown to have them repaired immediately, as she is to have a party in the evening; or the effort of some unprincipled being to settle his bill by his complaints; or that of some dogged scoundrel that has your work in his mouth and will pay when he gets ready; or some dishonest scamp that never intended to pay; or that of some cool calculating Yankee, that has ascertained that gold-

foil can be bought for twenty-eight dollars an ounce, and is prepared to insist that your prices are enormous; or some would-be nabob, that wants the best and is scarcely willing to pay for the worst; or take a day when the constant ring of your bell would indicate that you had a scissors-grinder in the house, where the good and bad, high and low, the placid and petulant, rich and poor, seem to have assembled, as it were, for your especial benefit; some to praise, some to curse, some to insinuate, some to complain, some to compliment, some impatient, all wanting something, and yet no time to do anything but answering their inquiries.

This is but a faint outline of the many perplexities of the dentist. Perplexities that after years of training he calmly resigns himself to, as necessary and to be expected. But, sir, there are perplexities to which the man of integrity, the man of worth, the honest man can never consent to, without entering his protest. I mean, sir, perplexities created by charlatans in the profession, men that have entered the profession because they have thought it an easy and genteel life to live, ignorant even of its first principles, and too lazy to inform themselves, they have presumed enough upon the ignorance of the public with reference to dentistry to try and palm off their impudence for wisdom and ability, persons that put forth pretensions that I doubt not in their moments of retirement prey like a viper upon their consciences, (if they have any,) pretentions that shut them out from the society of the respectable portion of the profession, and if perchance they are ever to be found among them their sneaking countenances denote a consciousness of their own guilt as plain to be seen and understood as the mark set upon Cain. Can one of these beings whose pretentions are spread broad cast by newspapers, rob the innocent victims that they have induced into their net through the day, count up their ill-gotten gain at night with any other feelings than that of the highwayman, can a man justify the pretence to extract teeth without the slightest pain by pleading the probable benefit that may grow out of it, as well may he undertake to justify any other *lie* that he may utter for his own selfish ends. Is that man honest that will take the hard earned wages of some poor person for plastering up with cement, teeth with exposed nerves? "Generous is the robber or highwayman in the open daring of his guilt to the secret coward whose malice liveth and harmeth after him, who smoothly sinks into the grave with the smile of fraud upon his face, and the last black deed of his existence was injury without redress." What religious, moral, or legal right has such a being to place himself in a community to make himself an annoyance—what right has he to build himself up by pulling others down; in short, what right has he to hang himself like a millstone upon the neck of the profession, to pull it down to the level of his own dishonesty? This same spirit carried out

can be found at the gamblers' table, or at the haunt of the thief, or the den of the licentious, it creates the necessity and the expense of bolts and bars, judges, jurors, and the night watch; it makes us familiar with deeds of plunder and bloodshed; it fills our State prisons, and furnishes the scaffold with its victims. There is another class of the profession that for a few moments demand our attention—I mean that class of individuals who perch themselves so high that they fancy they have no equals, that arrogate to themselves what they do not possess, and assume positions that they are incapable of filling, that wrench from the pocket of honest persons money which they may count as illy gotten, and which is usually illy spent; men that worship only the "golden calf," "the hungry hounds of extortion whose eyes are only upon the mortgage, the bond, and the writ, with an appetite for gold, unslumbering watcheth to glut its maw, and the heart so tenanted and shaded is cold to all things else, a curse that withers the brain and cases the heart with iron," that can only be reached by a golden key; men that express opinions and give advice without a knowledge of facts, that do by a look, a wink, or nod, strengthen the mind of some unreasonably dissatisfied patient in the dishonesty of their dentist, that seek to point out defects, that only exist in their preconceived notion of things, that insinuate that the non-payment of the bill would be the proper course, or rather than be honest and acknowledge that there are other beings in existence than themselves, suggest some other trouble, perhaps an alteration or perchance a lawsuit. I have witnessed these things, and I doubt not yourself, and every member of this society from the commencement of our practice to the present time, and no doubt we have all been lead to wonder how such massive minds, could meddle with such small matters. The world and especially this large city is full of these pretenders, who, when asked for an opinion, have not intelligence enough to give one, but plant themselves immediately upon their position as sufficient for all that they may utter, that as a fortification for their wits plant themselves on some high place, surround themselves with inventions and gew-gaws the work of other minds and hands, to divert from their real character and assist in establishing their identity. These two classes are the extremes of our profession, the extremes of our perplexities, the extremes of villainy; but though seemingly so widely separated are actuated by the same spirit, differing only in this; that the narrow conception of the one prompts him to promise every thing for nothing, and the impudence and advice of the other demands for nothing, everything. I could dwell a greater length of time upon this part of our subject, and show its greater deformities; but, sir, I presume I should tell you nothing new, nor express any greater horror or contempt of it than what you now feel. Perhaps, silent contempt and a rigid

perseverance in the right, may seem the better way of disposing of this hydra-headed monster; let us then cover it up, draw the decent curtain, and dwell not longer on such deformities, but rather rejoice that there are those in our profession that live and act, as though there was a God that ruled in the armies of heaven and among the inhabitants of the earth; men that live not for sordid gain, who live to see others live, whose happiness is heightened by the happiness of others, who live as though all was vanity that was not honest, whose faces have never been shaded but by the mantle of humility, and whose aim and ambition has been to carry the lamp of love, rather than the torch of strife; of such, I am happy to know our society is composed.

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## SELECTED.

From "The Southern Dental Examiner."

### ARTISTIC DENTISTRY.

Where in the whole round of the professions do we find one that embraces more within its sphere than dentistry? It not only includes a knowledge of the natural sciences, but also a taste for the *artistic*, the true, and the beautiful,—that which is allied to sculpture and painting, giving the creations of expression, intelligence. No block of marble in the hands of the sculptor was ever more subject to his control than are the varied expressions of the mouth and its surroundings subject to the controlling power of the dental art. How easy a matter it is for the dentist, from a want of appreciation of the artistic, to destroy all harmony of the features by inserting a faulty denture which makes the very mouth a libel upon its possessor.

Judging from the great number of dental abortions which we constantly see, not only in the drawing-room but also in the public ear, we are forced to believe that we have in our profession a great many more dental *artisans* than artists. Webster says that an *artist* is "one who professes and practices one of the liberal arts, in which science and *taste* preside over the manual execution;" while an *artisan* is one who only "follows *mechanically* the *rules* of his handicraft or art." That "science and taste" do not always preside over the mechanical execution of artificial dentures may often be seen by the great want of adaptation which they frequently have to the complexion and to the form and expression of the features of the wearer. Many dentists have a favorite *form*, *size*, and *shape* of tooth which they prefer to all others. Some have a passion for large teeth; others for small, delicate, and effeminate ones. Some "want the whitest teeth," and use them indiscriminately, regardless whether the patient be a blonde or a brunette. It is the fashion

with many to observe a stiff mathematical precision in the arrangement of the teeth, thus giving them an artificial and unnatural appearance which is noticeable to the most superficial observer. Teeth set upon the plate in this manner are better adapted for the show-case than they are for the mouth; although to the dental *artisan* they may look beautiful and seem without a fault.

Shades of complexion and expression of features vary and differ as do the sands of the sea-shore; but yet each individual has a principle of harmony pervading and governing his entire being. Thus, we never find red hair associated with a dark complexion, neither do we find pearly-white teeth. But the color of the hair, eyes, and complexion,—the expression of features, and in fact the whole build and formation of body,—are in perfect harmony and keeping with the shade, form, and size of the teeth. Long, narrow teeth are not usually found with round, broad faces. The predominating forces in the system, which give rise to these physical characteristics, are denominated *temperaments.*

As these temperaments change with age, so also does the expression of the teeth. It would be bad taste in a dentist to insert in the mouth of a lady of fifty such teeth as become a miss of eighteen. In old persons the shade and appearance of the teeth are in perfect keeping with the changes that time has wrought in the features of the face.

When the natural teeth are closely examined, we never find them set in the arch with "mechanical exactness;" but they always present a "graceful irregularity." This fact should always be kept in mind when arranging the teeth upon the plate.

Strict *adherence* to nature is the foundation of *artistic* dentistry. No set of rules can be given for the selection, arrangement, and adaptation of artificial teeth that will apply to every case. Close observation, a careful study of nature, particularly of the temperaments, and a well-applied experience, can only make one proficient in this interesting department of our profession. B.

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Discoveries by the Microscope.—Leuwenhœek tells us of animated insects seen with the microscope, of which twenty-seven millions would only be equal to a mite. Insects of various kinds are observable in the cavities of a common grain of sand. Mould is a forest of beautiful trees,—with the branches, leaves, flowers, and fruit fully discernable. Butterflies are fully feathered. Hairs are hollow tubes. The surface of our bodies is covered with scales, like a fish; a single grain of sand would cover 150 of these scales, and a single scale covers 500 pores; yet through the narrow opening the sweat exudes like water through a sieve; how minute then must be its particles! The mite makes five hundred steps in a second. Each drop of stagnant water contains a world of animated beings, swimming with as much liberty as whales in the sea. Each leaf is a colony of insects, grazing on it like oxen in meadow.

Those having little experience in the Vulcanite Base we take great pleasure in referring to the following list of licenses of the American Hard Rubber Co.

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" Robinson, B. F., Cleveland, O.
" Rawson, J. B., Jamestown, N. Y.
" Richardson, Jos., Cincinnati, O.
" Robinson, J. A., Jackson, Mich.
" Russell, R., Nashville, Tenn.
" Rice, A., Spencerport, N. Y.
" Reynolds, R. G., Waterbury, Conn.
" Ryder, W. E., Tuscaloosa, Ala.
" Rogers, J. W., Rochester, N. Y.
" Requa, J., Rochester, N. Y.
" Ramsay, J., Springfield, O.
" Rose, B. A., Urbana, O.
" Ross, N. D., Troy, N. Y.
" Roberts, W. H., Richmond, Va.

Dr. Roberts, Spencer, Philadelphia, Pa.
" Reese, G. W., Columbus, Ga.
" Roberts & Gregg, Columbia, S. C.

" Searle, F., Springfield, Mass.
" Sumner, C. G., Norwich, N. Y.
" Swartly & Shult, Pennsburgh, Pa.
" Snow, R. G., Buffalo, N. Y.
" Smith, D. D. & A. T., Syracuse, N. Y.
" Spencer & Simmons, Providence, R. I.
" Salmon, E., Lima, N. Y.
" Smedley, A. P., Media, Pa.
" Sylvester & Jameson, Lyons, N. Y.
" Strickland, B., Cleveland, O.
" Spencer, Geo. W., Pittsburgh, Pa.
" Steinburg, David, New York City.
" Smyth, Job, Hallsport, N. Y.
" Small, M. W., Woonsocket, R. I.
" Shattuck, W. H., Janesville, Wis.
" Scroggs, J. A., Galena, Ill.
" Siddall, J. F., Oberlin, O.
" Spalding, C. W., St. Louis, Mo.
" Sohn, E. C., Galesborough, Ill.
" Shower, E., Nashville, Tenn.
" Smith, J., Dover, N. H.
" Smith, B. F., New Orleans, La.
" Seger, H., Montgomery, Ala.
" Scranton, J. N., Bennington, Vt.
" Stinson, Wm. H., Baltimore, Md.
" Skinner, E. M., Syracuse, N. Y.
" Smith, A. S., Oswego, "
" Scott, Quincy A., Pittsburgh, Pa.
" Stoddard, Wm. F., New London, Conn.
" Simmonds, J. L., Boston, Mass.
" Saunders, A. A., Cherry Valley, N. Y.
" Schuyler, J. E., Hudson, N. Y.
" Stebbins, N., Pittsburgh, Pa.
" Scott, R., Greensboro', N. C.
" Scott, H. R., Franklin, N. Y.
" Stevens, N., Batavia, N. Y.
" Sweet & Easton, Pontiac, Ill.
" Shirley & Retter, Jacksonville, Ill.

" Thompson, C. A., Westfield, N. Y.
" Terry, Alfred, Norwalk, O.
" Taylor, Jas., Cincinnati, O.
" Todd, A. W., Montgomery, Ala.
" Tewksbury, H. L., Mount Morris, N. Y.
" Tripp, Geo. W., Auburn, N. Y.
" Tower, H. T., Lyons, "
" Truesdell & Creighton, Elgin, Ill.
" Trapp, J., Williamsport, Pa.

Dr. Van Vleck, Wm. B., Hudson, N.Y.
" Van Vleck, V., Hamilton, N. Y.
" Vandenburgh, D., Oswega, N. Y.
" Vinal, G. A. W., Andover, Mass.

" Wright, S., Homer, N. Y.
" Wright, W. F., Pittsburgh, Pa.
" Wanzer, H. C., Rochester, N. Y.
" Westlake, A. W., Rahway, N. J.
" White, Thos. A., Detroit, Mich.
" Whitney, B. F., Buffalo, N. Y.
" Westcott, A., Syracuse, N. Y.
" Wilson, E. F., Rochester, N. Y.
" Walters, L. D., Lockport, N. Y.
" Whiting & Benedict, Detroit, Mich.
" Watt, Geo., Xenia, O.

Dr. Wadsworth, H. N., Washington, D. C.
" Wayt, J. H., Charlotte, N. C.
" Wilkinson, A. L., Huntsville, Ala.
" Ward, S. L. & W. G., Lowell, Mass.
" White, H. R., Utica, N. Y.
" Wheeler, W. H., Baltimore, Md.
" Way, L. E., Lee, Mass.
" Williams, M. W., Honesdale, Pa.
" Wood, B., Nashville, Tenn.
" Woodruff, U., Canandaigua, N. Y.
" Wilson, E. T. & Son, Boston, Mass.
" White & Weller, Durham, N. Y.

" Young, A. J., Dover, N. H.

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## TO THE DENTAL PROFESSION.

The subject of our controversy with Mr. John T. Toland has occupied so much of the space of the past Nos. of "The Vulcanite," that we had determined not to refer to it again, until a decision should have been rendered by the court, before which the case is now pending. But the two articles from the pen of Mr. Toland, in the December No. of the "Dental Register of the West," contain a few statements which we cannot suffer to pass unnoticed. We do not propose a review of the articles in question, as most of the points on which they touch have been fully described by us, and are undoubtedly well understood by our readers. In these articles, as in those from his pen which have preceded them, he endeavors to draw off attention from the unenviable position in which he finds himself placed in this controversy, by ungentlemanly attacks on our Agents, and assertions that his sole motive in maintaining it is to be found in the great regard he has for the interests of the dear profession. Perhaps an examination into the truth of some of his other assertions may enable us to judge how much confidence should be placed in these. The first article of Mr. Toland's commences in these words:

"It is a source of much regret to me that the case of Goodyear *vs.* Toland, in the United States Court for the Southern District of Ohio, in which I am charged with infringing the Goodyear Patent, by manufacturing, or causing to be manufactured, Vulcanized Rubber Plates for Dental purposes, has not been decided upon the demurrer filed by myself in order to bring the case to a direct issue. Everything in my power has been done to push the matter, but the business before the court has been such as to preclude the possibility of reaching the case

this term. I am extremely sorry that circumstances beyond my control have caused this delay. I wish my dental friends distinctly to understand that I am not dead, nor sleeping over their rights or my own. The case will be carried through by me, not from motives of malice or obstinacy, or from any hope of pecuniary benefits that may accrue in event of a successful issue—for, taking any view of the case, the result, whether favorable or not, in that respect, will be a loss to myself—but actuated by motives of principle and duty, even though at a pecuniary sacrifice, I shall raise my voice against imposition, and protect, as far as in me lies, the profession against such."

Now, so far from this being a true statement of the case, we are informed by our attorney that the demurrer of Mr. Toland was argued in the latter part of November, and denied, and that thereupon the defendant's counsel moved to strike out parts of our bill as irrelevant, and this motion, he adds, "must lie over until next term of the court." So much for Mr. Toland's having done "everything in his power" to bring the suit to trial. We were prepared to expect these delaying motions, as we knew that the extra profits of Mr. Toland's sale of Gum and Heaters, under the stimulus of free trade, would more than pay the expense. But we must confess that we did not expect that, after realizing the profits, he would endeavor to throw the responsibility of the delay upon us. The result only shows what sacrifices some men are willing to make for the "profession" with which they may be connected. We trust such efforts will be *duly* appreciated by the dental fraternity. We are happy in being able to announce to our readers, however, that Mr. Toland's delaying motions will not probably delay a decision on the Patents of Mr. Goodyear, as we have another case in court on which we expect a decision within a month. If this should be in our favor, as we confidently expect it will, we shall then be in a position to obtain injunctions on infringers in every part of the country, and thus relieve our Licensees from the illegal competition to which they have been so long subjected. We can assure them *we* have pushed our cases in court as hard as circumstances would admit; and as we have laid before them the proceedings in all of these suits, we feel confident they will acknowledge *that we* "have not been sleeping over their rights, or our own." We wish to say a few words in this connection in regard to the charges of "arbitrary conduct" charged upon us repeatedly by Mr. Toland, and reiterated in another form in the pages of the "New York Dental Journal," by Mr. W. B. Roberts, *another Daniel come to Judgment*, on the proceedings of the American Hard Rubber Co. We would like to have these gentlemen point out in what particulars our "arbitrary conduct" consists. For the last three years we have witnessed constant appropriations of our *property* by parties in every part of our country, and these appropriations have gone on until

at this day there are probably not less than 1000 persons in the United States who are deriving a profit from the use of that property, without having paid for it a single farthing. Out of this large number we have selected four of the most influential, and, as we believe, the best able to defend themselves, both intellectually and pecuniarily, and after due warning have commenced proceedings to regain by law what they refused voluntarily to surrender. Two of these parties have backed out of a contest with us, one left the State, and the other case remains still in court. The defendant in this last case is one who is loudest in his cry of "arbitrary conduct," thus demonstrating the truth of the adage, "no man ere felt the halter draw, with good opinion of the law." The other champion of the "victims" of Vulcanite, who is pleased to refer to the doings of the American Hard Rubber Co. as a "theatrical performance," is one who not many years since sought to enlist his energies with those of the "wealthy monopoly" he is now vilifying, in their endeavors to "force their office rights on the profession." What part in the "drama" he would have performed had he been admitted to the management, does not now appear. But as we found in our present General Agent qualities which we thought best fitted him for that office, and as our business did not require the aid of either "*flats*" or *sharps*, we declined the proposal. How much his disappointment on this account has to do with his virulent attack on us, we leave those who know him best to judge. Both Messrs. Toland and Roberts think we charge too much for our rights, and hesitate not to call us "extortionists." To offset this opinion, we have had some of the best dentists in the country request us to put our price at $500, instead of our present rates; and considering the immense saving in the cost of material over gold to every dentist who uses Vulcanite, we cannot see the justice of their charge. Besides, the price we charge is by no means all profit to us; the expenses of advertising, circulars, agents' commissions, lawsuits, office expenses, and the tariff we have to pay the patentee on every license we sell, absorb a very large share of the amount we receive. As to the charge of "forcing our licenses on the profession," it is entirely gratuitous—we merely *offer* them to the profession; if they do not choose to pay, they can let them alone, and keep on with their gold and cheoplasty. One other great sin, that of claiming that "all the vulcanizable dental compounds now in the market are, when vulcanized, included in the Goodyear Patents," which Mr. Toland charges upon us, we have before considered; but we wish now to add that we do not wish the profession to take our "*ipse dixit*" on the subject. We would prefer that they should do *as we have done*, prove the fact by satisfactory chemical tests. Mr. Toland knows that we have claimed nothing more than facts warrant in this particular, else why does he not inform the profession *which* of the compounds does not come within

the scope of the Patent. The fact is, Mr. Toland is opposed to *all* Patents on dental material and apparatus; and it is very natural he should be so, for he is a dealer in those articles, and no doubt finds his trade somewhat restricted by them. He is, however, in error in supposing we "censure him for the large amount of business he has done in heaters and material." So far from it, we hope to see the time when his trade in these articles will be fourfold what it now is, and his profits correspondingly great. What we *do* censure him for (and we shall be much mistaken if his patrons do not some day join us in the censure) is that he has made his sales by holding out the idea that the "Heaters and Gum" could be used without the purchase of a license from us, and that in doing this he has sunk the character of the *journalist* in that of the *trader*. His wisdom in refusing to *guarantee* the right to use what he sells is certainly a master stroke of worldly policy. As to any inference to be drawn from the reduction we ever made in the price of vulcanizing, we would inform Messrs. Toland and Roberts that we did not adopt that measure because of the introduction of "coralite," or of other materials, but because the agent of Dr. Putnam, who at that time owned one half of the right for the city of New York and vicinity, placed it in the hands of a party who was doing much to encourage infringements in other parts of the country. We subsequently purchased Dr. Putnam's interest, and then raised the price of vulcanizing to its original standard. Mr. Roberts takes up the cudgel against us, because, as he says, "the name of Roberts has been pertinaciously and incorrectly thrust into the case." Admiring the jealousy with which Mr. Roberts guards the honor of the family name, we must deny any desire or intention on our part of detracting in any degree from its fair fame, and must ask how he proves his charge. He admits all that we have ever claimed in the case, publishes the injunction against his brother which still remains in force, and even acknowledges that his brother paid Mr. Goodyear damages for his infringements; and yet, in the face of these admissions, he goes on to say that "as far as the case of the American Hard Rubber Co. *vs.* Roberts is concerned, the profession have a perfect right to vulcanize to all eternity."

If he means by this that any one has a right to *try the same experiment* his brother tried, we will grant it; but we should think the result of that experiment was hardly such as to induce a careful man to repeat it. Mr. Roberts stated that only four dentists of the city of New York have purchased vulcanizing rights, and cites this to prove that "the profession is too well posted here to fall into the snares of the American Hard Rubber Co." Does Mr. Roberts intend that his distant readers should understand from this that only four of the Dentists of New York use the Vulcanite Base in their practice? If so, he means that they shall take for truth what he knows to be a *base false-*

*hood.* The nature of his business is such that he must know the fact that a very large proportion of the dentists of New York use the Vulcanite in their practice, but have not bought Office Rights, because they prefer having their vulcanizing done at our office. The use of Vulcanite by the profession has been steadily increasing, until we believe at the present time it is far more extensively used than any other material. The almost universal satisfaction which it has afforded the wearer, from the commencement of its use to the present time, is a sufficient answer to the doubt raised by Mr. Roberts, in another article, as to its effects on the health. Could we be satisfied that it was in any manner injurious, we should immediately discontinue its use; but knowing, as we do, that none but the most powerful acids will act upon it, and then operate only very slowly; that "oily substances and chloroform" do *not* act upon it, and that we have in our possession pieces which have been worn in the mouth for six years without any apparent change, we do not hesitate to pronounce the idea, that it can be decomposed by the secretions of the mouth, all humbug.

We have occupied more space than we intended when we commenced, and, in taking leave of Messrs, Toland and Roberts, would congratulate the former on the sympathy manifested by the latter in his promise to pay $100 "to sustain the principle of right," provided "*he sustains the suit and gains it*;" and we would also congratulate Mr. Roberts on the probability that he will not very soon be called on to redeem his pledge. AMERICAN HARD RUBBER CO.

## EDITORIALS AND CUTTINGS.

"AN ANOMALY" EXPLAINED.—At the time the August Number of the Vulcanite was sent to press, we concluded not to publish the proceedings of the American Dental Convention, to be held at Saratoga on the 7th of that month, for we had made arrangements to be absent from the city. But after attending that highly interesting gathering of the profession, and listening to their able discussions, we changed our intention, and, backed by the request of many of our subscribers, we concluded to enlarge the Vulcanite to make room for the proceedings in our next issue.

After carefully examining the reports in the various Dental Journals, we selected the report in the "Cosmos," as furnished by our friend George T. Barker, D. D. S., as the most reliable, and copied so much of it as would afford our readers a clear idea of the modes of practice as observed by those gentlemen who participated in the deliberations of that body.

By some "anomalous" inadvertency, however, we omitted giving the "Cosmos" and its accomplished reporter the usual credit, which we take the earliest opportunity of correcting, thus fully acknowledging our indebtedness.

We trust that this explanation may be deemed satisfactory, and that our friend Barker will not have occasion, in the future, to call our attention to a ismilar "anomaly."

In this connection it is proper to state that the "Dental Register" came in for a share of our attentions in this particular. "Credit to whom credit is due."

## WHO IS RESPONSIBLE?

We notice in the November number of the "Dental Cosmos," that the question has been raised by one of the New York Dentists, in regard to who is responsible for the failure of an Artificial Denture,—the "Surgeon" who takes the impressions, fits the plate to the mouth, takes the articulation, and supervises the arrangement of the teeth, &c., or the mechanical workman who simply performs the labor thereafter? The subject is handled by the "Cosmos" in a manner that would lead one to suppose that it involved a complicity requiring a "Philadelphia Lawyer" to explain. To our mind the question is one of easy solution. Who would be responsible for misfitting plates, in case the "Surgeon" employed a mehanical workman in his own Laboratory? Every one must see that the employer, and not the employee, would sustain all losses arising from want of adaptation in every particular, no matter from what cause or causes, or which of them being in the fault. This is the custom, and there is reason why this should be the case. In the first place, all mechanical workmen receive a price for their services which precludes the possibility of their being held responsible for any share of the losses, either by bad debts, or bad "fits."—Second: Every Dentist who manufactures his own mechanical work sometimes fails, and is compelled to reconstruct the work in order to give satisfaction. This has always been the case, and probably always will be, for the following reasons: in working gold work, it matters not how carefully the plate is raised, or how perfectly adapted, the plate may change in soldering so as to defeat success. In manipulating continuous gum work, every one knows that the great difficulty heretofore experienced in this really beautiful system is, the liability to changes in the plate by the contraction of the silicious compound, in the high degree of heat required in baking. Some forms of plates are much more liable to change than others, but all are liable to change, from causes beyond the control of the most experienced and successful workman.

Those engaged exclusively in Laboratory work for the profession have generally advertised that they are only responsible for the mechanical execution of the work, and not for its adaptation to the mouth. This is as far as any sensible man would, under any circumstances, become responsible. The mechanical dentist who works from impressions or models, can have no idea of the requirements of an artificial denture adapted in any particular to the wants of the patients. Models from wax impressions, with various alterations and allowances made, are often presented to him; his business is to get up the plates from the models, and the "Surgeon's" business in such cases is to fit it to the mouth. This done, and the articulation taken, with ordinary care and experience on the part of the mechanical dentist, the responsibility must necessarily rest with the "Surgeon." The relationship existing between the "Surgeon" and the mechanic undergoes no change by the former sending his model into an adjoining building, or having the same work done in his own office by the same workman. It requires no "code of dental ethics" to settle self-evident truth. If the "Surgeon" has confidence in those he em-

ploys, he must take the responsibility; if he has not, he must either do the work himself, or find some one in whom he has confidence, and then take the responsibility . we can see no other way. It is true, if culpable neglect or gross carelessness on the part of the mechanic should render his work useless, he clearly is bound to make it good; but in unavoidable circumstances in which no human foresight could prevent the consequences, and which would be liable to occur under the "Surgeon's" own manipulation, he alone must sustain the loss. Reason: The mechanical Dentists charge $20 for a full denture from the impression, for a continuous gum case, after paying for Platina, fine Gold, Teeth, Furnace expenses, Rent, &c. He will will have $5 or $6 for his labor; now if he is to be held responsible for any misfitting of the work after its completion, every such case would involve him in positive loss. With the "Surgeon" the case is different: he charges $50–$60, and frequently more, for the case which originally costs him but $20, and can well afford to sustain the expense incident upon occasionally making over the work, and still have something left as compensation for the time spent in taking the impressions, articulations, &c. In making Gold work, the usual charge, exclusive of material, is 75 cents per tooth, paid the mechanical dentist; this would be $10.50 for making the dies, raising the plate, making the articulating models, grinding the teeth, soldering, polishing, &c. The price demanded in either of the above cases is barely sufficient to compensate for *doing the work once*, and the cases in which those engaged in the Dental Laboratory business have succeeded in making anything more than a scant living are very rare. The idea that the "Surgeon's" time is more valuable than that of those engaged in the mechanical department of our profession, has no force, for if the Surgeon could not get his mechanical work done in these places, he would have to do it himself, or give up that part of his practice. If he chooses to do the work himself, his time while thus employed would be worth no more to him than the services of any mechanical workman, and in many cases not so much. The Dentist who devotes his time exclusively to either branch, is more successful than when divided between the two, and consequently less liable to failure from causes that constant experience would enable him to overcome. As the time is fast approaching in our large cities when these branches must necessarily become separate and distinct departments, it is well that this question of responsibility should be satisfactorily adjudicated, and we do not see on what other grounds it can be settled, except the one above indicated; for one of two things is certain, that a much larger price will be demanded by the mechanical dentist if he takes upon himself additional responsibilities so as to enable him to meet the contingencies, or he will refuse to do the work for the "Surgeon," in which case in all probability he would "set up" for himself, charge double his former prices, and furnish the work to the public at half the price charged by the "Surgeon."

## IMPROVEMENTS IN VULCANIZERS.

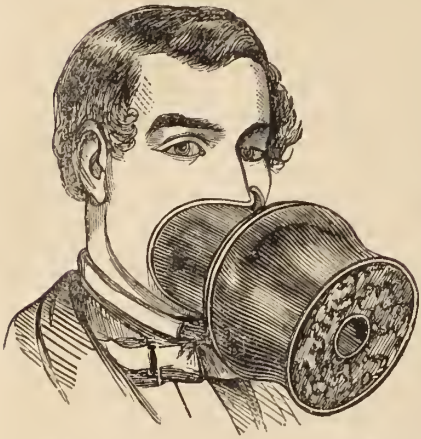
In perusing the January number of the "Dental Instructor," by E. A. L. Roberts, New York, one cannot fail to see the peculiarities so frequently manifested among members of our profession, viz: To claim originality and priority for themselves, their productions, and modes of practice. It having become a proverb that there is nothing new to a Dentist, no matter how novel or valuable,

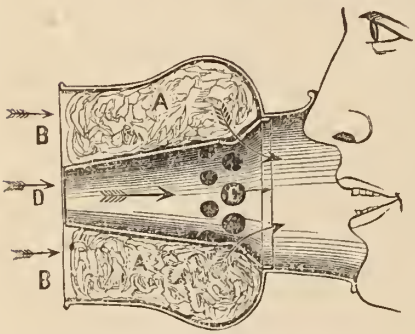
there are not wanting among us those who are prone to claim for themselves what in truth belongs to others.

In regard to the improvements in Vulcanizers, there can be no doubt but really great improvements have been made within the past two years, and as we are among those that believe "Honor belongs to whom honor is due," we propose briefly to review the claims somewhat indirectly set up in the number of the "Instructor" now before us. It is evident that the writer claimed for Dr. E. A. L. Roberts the "five great and important points gained and introduced in our (his) last and most perfect machine." It is unnecessary to go through the various transitions which have marked the progress in the Vulcanizing machine. The only real difference between the iron machines manufactured by Putnam, Warren and Banks, and Mr. Roberts, was in their portability, Mr. Roberts making the smallest machine; the principle in all was substantially the same. Warren and Banks claimed, in their specification, as filed in the Patent Office, a perforated plate, which was secured to the waterpot and steam chamber by means of flanges on the latter, and strongly bolted through the perforated plate, fastening the whole together, the object being a support or floor for the flasks to rest upon, and to prevent the water from submerging the work. Mr. Roberts used a single casting, and, instead of the permanent perforated plate or bottom, employed an adjustable perforated diaphragm, which was in fact equivalent. Mr. Roberts' iron machines were the most portable, and he is entitled to credit for simplifying the apparatus. Dr. B. S. Brovon, of Buffalo, N. Y., was the first that made a really "great" improvement in the Vulcanizer. This improvement consisted in a simple copper pot, but a little larger than an ordinary half-gallon measure, and very nearly resembling one in form, without any provision for keeping the flask out of the water except that the screw of the clamp rested on the bottom of the Heater; this space allowing about one inch of water below the flask, answers every purpose. These Heaters, from their compactness and efficiency, for a time were in great demand. Dr. Geo. E. Hayes, of Buffalo, brought out the next improvement, which not only considerably reduced the size of the machine, but secured by the arrangement of a spring clamp, a constant pressure upon the Rubber while undergoing vulcanization. This Heater, together with improvements in Thermometers by Dr. Hayes, made his apparatus the most complete and perfect Heater in the market. Drs. Hayes and Brown formed a co-partnership in the manufacture of Hayes' Heater; this was evidence that Dr. Brown regarded Hayes apparatus as the best

Dr. B. T. Whitney, of Buffalo, a little less than a year ago, brought out a Heater which he regarded as an improvement over all others. The peculiarity of Whitney's machine was, the substitution of a screw-top in place of bolts, the cover of the Heater forming a nut, and screwing over a thread cut on the upper end of the boiler. Mr. Roberts' last "improvement," which combines the "five great and important points," is a combination of Hayes "foot" with Whitney's "head." Our object in penning these facts is, that the real inventors may receive that credit to which their labors fairly entitle them. No other evidence is required to establish priority, than the facts of the dates when the above Heaters were introduced into the market; and no better evidence of their superiority over all others is wanted, than the fact that Mr. Roberts has combined them in one machine.

## LUTHER'S SAFETY ANÆSTHETIC INHALER.






A. Sponges containing the Chloroform or Ether.
B. Admission of air through the sponges.
C. Admission of vapor from the sponge to the mouth.
D. Admission of atmospheric air to the inhaling organs.

This really ingenious Inhaler, gotten up by Dr. H. G. Luther, No. 42 Great Jones Street, New York, is without doubt the most complete apparatus for administering Chloroform or Ether that has yet been devised. The advantages this instrument possesses over all others, are, *First:* By its construction a free supply of atmospheric air is secured while inhaling. *Second:* The lips are perfectly protected from contact with the Anæsthetic fluid; and *Thirdly:* Great economy in the material used, and almost entire freedom from the unpleasant consequences of breathing the agent by the operator. By repeated experiments with this Inhaler, made at Bellevue Hospital, it was demonstrated that only about one-fourth the quantity of Chloroform or Ether was required to produce the results, when the same agents were administered from a sponge or napkin. We find that many of our first Surgeons and Physicians have given their approval to this apparatus. We take pleasure in recommending this Inhaler to the Dental Profession, and in evidence of its superiority and real merits, we have appended the following

### TESTIMONIALS.

New York, May 22, 1860.

Dr. Luther:—Dear Sir: Your Inhaler happily supplies an agent long needed by the profession, for the purpose of administering Anæsthetics with facility and safety. Its principal advantage consists in its permitting a free circulation of pure air while Ether or Chloroform is being inhaled. You may justly boast of having presented to the public an instrument which possesses a great superiority over the ungainly means adopted by the Surgeons of the Paris Hospitals. I take pleasure in adding my recommendation.

Yours Respectfully,

JOHN W. FRANCIS, M. D.

From J. M. Carnochan, M. D., Surgeon-in-chief to the N. Y. State Hospital.

I have made use of it on several occasions, in the performance of surgical operations, and find it answers exceeding well the purposes for which it was invented. It possesses the advantage of permitting free mixture of atmospheric air with the Chloroform while it is used, and moreover renders the administration of the Anæsthetic agents more convenient and less troublesome in those cases where patients become intractable before complete Anæsthesia has been produced.

From E. R. Peaslee, M. D., Professor of Surgery to the N. Y. Medical College.

I shall take great pleasure in using it, and in recommending it to my friends, as the best invention for the purpose, IN ALL RESPECTS, which I have ever seen. Its model and finish also render it a very beautiful instrument.

From S. R. Percy, M. D., Physician and Surgeon.

I have used your Inhaler many times. I find it a plain and good instrument, answering every purpose for which it was intended. It allows a proper admixture of air with the vapor of Chloroform or Ether.

From J. Marion Sims, M.D., Surgeon and Obstetrican, at "Woman's Hospital."

Having repeatedly witnessed the use of your Inhaler in the hands of Dr. Emmet, at "Woman's Hospital," I prefer it to any instrument for the purpose that I have ever seen. It adds to the safety of Anæsthesia, by insuring a bountiful supply of pure air.

From Dr. Mott, M. D., attending Surgeon to "Bellevue Hospital," St. "Vincent's Hospital," the "Jews Hospital," &c., &c.

The Inhaler has been under my direction in several institutions in this city, as well as in my private practice, and I believe it to be one of the best instruments for the purpose of administering Ether or Chloroform that has yet been presented to the profession and public. Your instrument offers many advantages, more especially to those inexperienced in the administration of Anæsthetics.

From Frank Hawthorne, M. D., House Surgeon, Bellevue Hospital.

I have often used and seen used the Inhaler, constructed by Dr. H. G. Luther, and am much pleased with it. Its use is certainly a great saving of Chloroform, as well as a convenience.

From H. F. Quackenbos, M. D., Physician and Surgeon.

I cheerfully recommend it as embodying principles of vital importance to the safe inhalation of Anæsthetic vapors; also as the most convenient and economical method of producing Anæsthesia.

From John J. Crane, M. D. Surgeon, to Bellevue Hospital.

I have used your Inhaler, and I find it combines economy and safety in the administration of Anæsthetics, and that it fully answers the ends you propose. I prefer it to any other that I have used.

From Wm. O'Meagher, M. D., Resident Physician and Surgeon to St. Vincent's Hospital.

I was at once struck with the peculiar fitness of your "Inhaler" for the intended purpose of Anæsthetic Inhalation. I am quite satisfied, from personal experience, of the danger and inefficiency of the usual methods, at present adopted in most of our Medical Institutions, of super-saturated, dripping, sponges, napkins, lint, &c., and that your "Inhaler" will be looked upon as a boon and desideratum long and earnestly desired. That it will be fully appreciated by both the Dental and Medical professions I have no reason to doubt, and fervently hope.

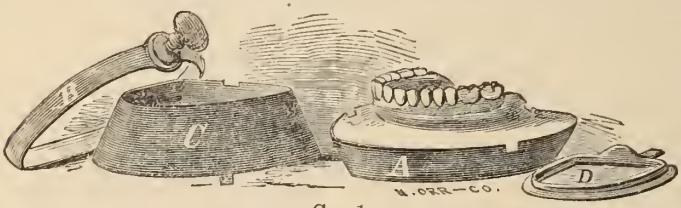
**Price, Silver Plated, $5 00.**

Address,

H. G. LUTHER, *Inventor*, No. 42 Great Jones Street, New York, or
B. W. FRANKLIN, Agent, No. 640 Broadway, New York.

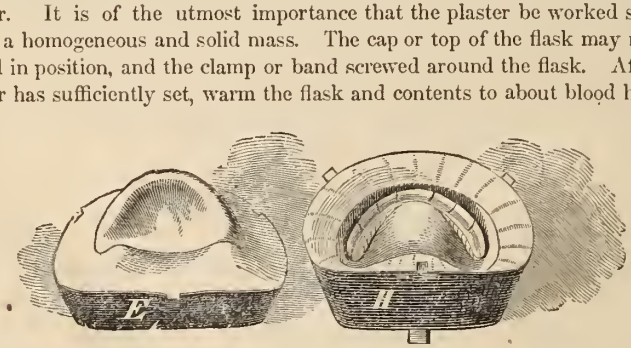
## DIRECTIONS FOR PUTTING UP THE VULCANITE BASE.

After a thin plaster model is obtained from a *perfect impression*, adapt a gutta percha or wax plate to the model, the size, thickness, and form required; with this get the bite or articulation of the mouth, the same as with a metal plate; arrange the teeth to the wax, the same as for other styles of work, being careful to bend the pins in the teeth, to form hooks either downward or sideways, or both, as the teeth may require. After the teeth are arranged, and the proper expression given, build wax around the teeth, as desired when the vulcanite is substituted. This process duplicates the wax form in the most perfect manner. The wax should be smoothed with a warm spatula, and a little wax melted around the edge of the plate to fasten it to the model, to prevent any plaster from running under the plate when the upper half of the flask is filled. Some little pains and taste, at this stage of the work, will save much time in finishing after the work is vulcanized. The model, with the teeth and wax form upon it, is set, teeth up, in the under side of the flask, and filled with fresh-mixed plaster even with the edge, or to a line that will admit of a separation, when the remaining half of the flask is put together and filled. Cut 1, with




Cut 1.

teeth, represents a case in the lower half of the flask, ready for the upper half. We now varnish the plaster with shellac varnish; when dry, oil the varnished surface, then place the upper section in its place, and fill with fresh-mixed plaster, being careful to fill every part complete, allowing no air-bubbles in the plaster. It is of the utmost importance that the plaster be worked so as to make a homogeneous and solid mass. The cap or top of the flask may now be placed in position, and the clamp or band screwed around the flask. After the plaster has sufficiently set, warm the flask and contents to about blood heat, or




Cut 2.

a little above, and gently separate; the teeth will be found firmly held in the upper section, with the temporary plate and wax attached. Now carefully remove the plate and wax, cleaning away all adhering wax from around the teeth,

and from between the pins, as seen in cut 2. We now set the upper half, containing the teeth, near the fire, and warm it, gently at first, increasing till quite hot. We now cut the rubber into strips of suitable width and length convenient to fill in and around the pins and teeth, and for the plate, and soften them by placing them on a hot brick, or in any other convenient manner. A tin vessel with a flat cover, containing boiling water, is the best, as there is no danger with it of overheating the rubber. When it is soft and sticky, we commence packing narrow strips around the pins, and in the grooves on the anterior side of the base of the teeth, being careful not to allow any plaster, or other foreign substances, to work into the rubber. Proceed in this manner, adding piece after piece, until the space occupied by the plate and wax is a little more than full. The part of the flask containing the model should be kept cold. The two parts may now be brought together, and a gentle pressure applied. If any blank places are visible on taking the flask apart, more gum may be added. We now cut a series of grooves, one-eighth of an inch in width and depth, from the gum to the outer edge of the plaster, as seen in cut 2. These grooves permit any surplus gum to escape when the flask is screwed together. Some are in the habit of working tin-foil on to the model, after melting a thin coating of wax over the surface of the model, or by wetting the surface with any mucilaginous gum, or liquid silex, and carefully rubbing the foil down smooth on to the model. After the case is vulcanized, the foil can be dissolved with hydrochloric acid. The foil prevents the plaster from coming in contact with the vulcanite and the under surface of the plate, presenting a much more comely appearance. The flask is now to be put together, the two edges being kept as nearly parallel as possible, the clamp placed on or around the flask so as to bring it together as even and uniform as possible. We now gently screw the flask partly down, and set it in a warm place for a short time, so as to give the gum time to yield under the pressure, as well as to prevent the teeth from being displaced by a too sudden force, starting the screw at short intervals until the parts come together. As a test for the completion of the vulcanization, twist a little of the gum around the screw outside of the flask; this, in case of any mistake in time, or otherwise, will give the operator a correct idea of the condition of the gum inside, without being under the necessity of opening the flask. If too little done, it may be replaced in the heater and vulcanized over. The flask may be placed under water in the heater; one hour at 315, 320, or 325 degrees is sufficient time to vulcanize the rubber. The degree of heat required to do good work may vary a little, in consequence of the variation in the thermometers. The best results, however, are when the vulcanite presents the consistency of horn under the scraping. If too long time is given in vulcanizing, it is more dark in color, and less tenacious. To prevent the gum from working between the joints of the teeth after the wax is removed, as seen in cut 2, fill the joints with dry plaster, and saturate with liquid silex. To finish the work, use coarse files, and scrapers of various shapes and sizes; then fine sand-paper or emery-cloth, cork wheels, and fine ground pumice-stone and water, cotton wheels, or very fine brush wheels, and whiting, or prepared chalk, and water. The vulcanite rubber is susceptible of a fine and beautiful polish, and the more perfectly it is finished the less likely it will be to retain minute particles upon its surface. The color of the work may be improved by placing it in a glass vessel under alcohol, and setting it in the sun for a few hours.

The form of partial cases can be chagned, after being vulcanized, by covering the surface with sweet oil, and holding it near a fire, or over a spirit-lamp, care being taken not to burn it; when quite hot the vulcanite becomes softened, and very considerable change may be made, and when cold it will retain the shape and position given to it. These changes can be made any number of times without impairing its strength or elasticity.

In cases of misfitting of vulcanite plates, in consequence of wrong impressions, or absorption, or otherwise, take another impression of the mouth, fill for the model, and cut or scrape away the rubber so as to bring the plate reasonably close on to the new model; secure the plate to the model by melting wax along its edge, and set the case and model into the flask, the same as a new one. After the plaster has set, separate the flask; the part containing the teeth and plate is to be heated up until the rubber is quite soft, when it can be removed with ease and new rubber substituted, saving the articulation complete; the case is then to be vulcanized as at first.

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## DENTAL PATENT.

We notice in the *Scientific American* that another Dental Patent was granted to S. W. Moffitt, of Harrisburgh, Pa., for an improvement in the manufacture of Porcelain Teeth, Patented Nov. 20th, 1860. The claim is as follows:

I claim the manufacture of porcelain teeth and gums of the material specified, in the proportions described and set forth; the same being prepared, applied, and consolidated together upon the plate, substantially in the manner described and for the purpose specified.

---

Explosion of Teeth.—Explosions of boilers, cannon, and carbines are not uncommon occurrences, but who ever heard of teeth exploding? Such phenomena, however, sometimes take place. A correspondent, W. H. Atkinson, of the *Dental Cosmos*, relates three cases of teeth exploding. He attributes these to the expansion of *gases* in the interior of the teeth, but how these gases were generated we are not informed.—*Scientific American.*

If these teeth had exploded in the mouths of some Dentists we should not have been at a loss to explain the phenomenon, or if the correspondent of the *Dental Cosmos* had reported the same number of Dentists, *exploding* from the same cause, we should have believed it.—Ed. Vul.

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All dentists using the Vulcanite Base in their practice, should instruct their patients to cleanse their denture daily with a brush, water, and chalk or whiting, and a little soap; this will effectually prevent the accumulation on its surface of minute particles of food, mucus, or other substances, and prevent deposition of tartar, and add greatly to the beauty of the color and polish of the work.

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To Advertisers.—Those desiring yearly advertisements in the Vulcanite, will oblige us by giving information of their intentions and wishes at as early a date as practicable, after receiving this number, as we design stereotyping all yearly advertisements immediately after issuing No. 1, Vol. 2.

Paraffine and pure Beeswax melted together, equal parts, make an excellent compound for impressions and other uses; it is much better than either alone.

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The New York Dental Journal, in its January No., devotes eleven pages professedly in answer to a short paragraph in the Vulcanite for November, in which we corrected a false statement made by the Editors in regard to "delegates being appointed by the Society." One of the Editors was present at all the meetings, and knows that what they stated was false. We were at a loss to account for this total disregard of truth until the January No. of the Journal came to hand. We then learned that these Editors "like impudence;" we never doubted it. We learn also, from the eleven pages above referred to, the following interesting statements. First: "And if settled in Mr. Toland's favor, (*that is, if he sustains the suit and gains it,*) we shall authorize Mr. Toland to draw on us for $100,—the price of a right." But in case Mr. Toland does not gain the suit, the Editors do not inform us that they are equally ready to aid Mr. Toland in his unsuccessful attempt to break down the Goodyear Patents; the inference, however, is, that Mr. Toland will be left to settle his own bills for cost. Second: These Editors seem to take delight in proclaiming to the world that they would not give $100 if the article in question were capable of the *complete moral regeneration of mankind.* This declaration was entirely gratuitous, for we do not believe that either of them has ever been charged with such disinterestedness. The comparative "value and importance to the profession" of Continuous Gum and Vulcanite are determined by the quantity of either employed by the profession;—we come within the mark when we say that there are probably fifty cases of Vulcanite employed at the present time, where one case is made of Continuous Gum; so much for their love of "impudence." Whether the Editors' "impudence" in assailing the motives of the large and respectable number of Licensees of the American Hard Rubber Co. will be for the interest of the Journal and the Dépôt connected therewith, will be determined hereafter. That kind of "impudence," however, we should think well calculated to lose rather than gain friends. We shall see.

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Explanation and other Matters.—The issue of the present number of "The Vulcanite" has been unavoidably delayed in consequence of the loss by fire of all our cuts and electrotypes, and from other causes beyond our control. Hereafter we hope to bring out "The Vulcanite" on or before the day upon which it is due.

The Vulcanite Base is commanding an important position in the estimation of the Dental Profession, and notwithstanding the many attacks upon it and its friends, by interested but unscrupulous parties, it has thus far fully sustained its reputation and more than answered the expectations of its friends and the public.

We have in progress experiments which are confidently expected to result in substantial improvements in color, as well as simplifying its manipulation, and thus removing the only objections that can be urged with regard to it.

These results we hope to lay before our readers in the next issue of our Journal.

A limited number of advertisements will be inserted in the Vulcanite at the following rates:

| | | | |
|---|---|---|---|
| One page, one year, . . | $20 00 | One page, one insertion, . . | 8 00 |
| Half page, . . . . . | 12 00 | Half page, . . . . . | 5 00 |
| Quarter page, . . . | 7 00 | Quarter page, . . . . | 3 00 |

Address "VULCANITE," No. 640 BROADWAY, N. Y.

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## BOOKS RECEIVED,

THE "Dental Register of the West." Edited by J. Taft and Geo. Watt. J. T. Toland, publisher and proprietor, Cincinnati, O. Monthly, at $3 00 per annum in advance.

The "Dental Cosmos." Edited by J. D. White, J. H. McQuillen, and Geo. S. Ziegler. Jones & White, publishers, Philadelphia, Pa. Monthly, $2 50 per annum in advance.

"The Southern Dental Examiner." Edited by J. P. H. Brown and Geo. J. Fouke. Brown and Hape, publishers and proprietors, Atlanta, Ga. Monthly, $1 00 per annum in advance.

"Cincinnati Dental Lamp." Edited by J. M. Brown, Cincinnati, O. Quarterly, 25 cts. per annum in advance.

The "American Dental Review." Published by A. M. Leslie, St. Louis, Mo. Quarterly, $1 00 per annum in advance.

The "Dental Enterprise." Edited by H. Snowden, Baltimore, Md. Monthly, 50 cts. per annum in advance.

"Revue Odontotechnique." Edited by C. S. Putnam, Paris, France.

"L'Art Dentaire." Edited by A. Preterre, Paris, France. Monthly, $5 00 per annum.

We would advise every dentist in the United States to subscribe for one or more of the above journals. Parties sending to us for dental goods can enclose the price of subscription, and we will have either of the above-named journals forwarded as per order. Try them—it would be a paying investment; better than money at interest. Dividends declared quarterly and monthly are paying institutions. *We repeat*, try them and see.

THE

# VULCANITE.

## A Quarterly Journal,

DEVOTED TO

## THE SCIENCE OF MECHANICAL DENTISTRY.

EDITED BY

B. W. FRANKLIN.

VOLUME II. 1861-2.

NEW YORK:
PUBLISHED BY THE AMERICAN HARD RUBBER COMPANY,
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# THE VULCANITE.

Vol. II. MAY, 1861. No. 1.

## CHARLES GOODYEAR, THE GREAT AMERICAN INVENTOR.

For the encouragement of inventors we quote from the *Scientific American* the opinion of the Commissioner of Patents, Hon. Mr. Holt, in favor of extending, for seven years longer, the Goodyear Patents, in which are set forth some of the incidents of Mr. Goodyear's life:

"From the first moment that the conception entered his mind, until complete success, embracing a period of from 16 to 18 years, he applied himself unceasingly and enthusiastically to its perfection, and to its introduction into use, in every form that his fruitful genius could devise.

"So intensely were his faculties concentrated upon it, that he seems to have been incapable of thought or action upon any other subject. He had no other occupation, was inspired by no other hope, cherished no other ambition. He carried continually about his person a piece of india-rubber, and into the ears of all who would listen he poured incessantly the story of his experiments, and the glowing language of his prophecies. He was, according to the witnesses, completely absorbed in it, both by day and night, pursuing it with untiring energy and with almost superhuman perseverance. Not only were the powers of his mind and body thus ardently devoted to the invention and its introduction into use, but every dollar he possessed or could command through the resources of his credit or the influence of his friendship, was uncalculatingly cast into that seething cauldron of experiments, which was allowed no repose. The very bed on which his wife slept, and the linen that covered his table were seized and sold to pay his board; and we see him with his stricken household following the funeral of his child on foot, because he had no means with which to hire a carriage. His family had to endure privations almost surpassing belief, being frequently without an article of food in their house, or fuel in the coldest weather; and, indeed, it is said that they could not have lived through the winter of 1839, but for the kind offices of a few charitable friends. They are represented as gathering sticks in the woods and on the edges of the highway, with which to cook their meals, and digging the potatoes of their little garden before they were grown, while one of his hungry

children, in a spirit worthy of his father, is heard expressing his thanks that this much had been spared to them. We often find him arrested and incarcerated in the debtor's prison, but even amid its gloom his vision of the future never grew dim, his faith in his ultimate triumph never faltered.

"Undismayed by discomfitures and sorrows which might well have broken the strongest spirit, his language everywhere, and under all circumstances was that of encouragement, and a profound conviction of final success. Not only in the United States did he thus exert himself to establish and apply to every possible use, his invention, but in England, France, and other countries of Europe, he zealously pursued the same career. In 1855 he appeared at the World's Fair in Paris, and the Golden Medal and the Grand Cross of the Legion of Honor were awarded to him as the representative of his country's inventive genius. Fortune, however, while thus caressing him with one hand, was at the same time smiting him with the other; for we learn from the testimony that these brilliant memorials passed from the emperor, and reached their honored recipient, then the occupant of the debtor's prison, among strangers, and in a foreign land, thus adding yet another to that long, sad catalogue of public benefactors who have stood neglected and impoverished in the midst of waving harvest of blessings they have bestowed upon their race. Throughout all these scenes of trial, so vividly depicted by the evidence, he derived no support from the sympathies of the public, while the community at large seems to have looked upon him as one chasing a phantom; there were times when even his best friends turned away from him as an idle visionary; and he was fated to encounter, on every side, sneers and ridicule, to which each baffled experiment and the pecuniary loss it inflicted, added a yet keener edge. The mercenary, naturally enough, pronounced his expenditures, so freely made, eul pably wasteful; the selfish and the narrow-minded greeted the expression of his enlarged and far-reaching views as the ravings of an enthusiast; while it is fair to infer from the depositions, that not a few of the timid and plodding, who cling tremblingly apprehensive of change, to the beaten paths of human thought and action, regarded him as wandering on the very brink of insanity, if not already pursuing its wild and flickering lights.

"Such has ever been the fate of the greatest spirits that have moved on the arena of human discovery, and such will probably continue to be the doom of all whose stalwart strides carry them in advance of the race to which they belong. With such a record of toil, of privation, of courage, and of perseverance in the midst of discouragements the most depressing, it is safe to affirm that not only has the applicant used that due diligence enjoined by law, but that his diligence has been in degree and merit, perhaps without parallel in the annals of invention."

# SELECTED.

From the Dental Register of the West, March.

We regret that we have not space for the entire of Prof. J. Richardson's valedictory address to the graduating class of the Ohio College of Dental Surgeons—session 1860–61, we have room only for the following extracts:

"It is not enough, in the discharge of your duties to the school, that you have cancelled such pecuniary obligations as have been stipulated for in the compact between us. We, in a great measure, have but enunciated the truths which have been worked out by the common brain of the profession; and while your immediate pecuniary indebtedness to us as mere preceptors have been fully cancelled, there stands a party behind us whose claims upon you are immeasurably above those which may be expressed in dollars and cents, and which, as graduates, it should be the leading purpose of your future professional lives to repay with interest.

"Much, if not all, of what you have acquired touching your profession is yours only by the generosity of those who have preceded you. You have the knowledge of scarcely a single fact in dental practice that is yours in your own right of discovery; nor do you hold scarcely a single truth or principle within the range of dental science in the right of your own mental conception or elaboration.

"We repeat, therefore, that every man who avails himself, for purposes selfish or humanitarian, of the accumulated experiences and teachings which the common labor of the profession has garnered up, incurs thereby a debt which, in all honor and honesty, he is under obligations to cancel by an unreserved consecration of his best powers to the good of the profession and the interests of humanity. His acquired knowledge is but a common fund which he holds in trust, and by all the exactions of good faith, he should make a good account of the trust reposed in him, and see that it is faithfully executed. Various means suggest themselves by which you may be enabled to make some fitting return for the great benefits you have received through the labors of those who, through all the changing fortunes of a comparatively new profession, have worked steadily and hopefully on to make it what it now is.

"Prominent among those means are self-culture and improvement. If you have, for a moment, pictured to yourselves lives of luxuriant ease in the practice of your chosen professions, disabuse your minds of what can only tend to enervate and demoralize you, and what must inevitably lead to bitter disappointments, if you have a single aspiration

to excel. It involves hard labor if a man but aims to keep up with the profession, but I hold even this to be beneath the dignity of a man's reach in the practice of his calling.

"What if all were content with simply *keeping up* with the profession? All acting on that principle would bring our speciality at once to a dead halt. Each one content with what is already known, would end all progression. The true idea or philosophy of progress is illustrated in every man's endeavor to add to the department of knowledge, to which his calling relates, something not already known.

"Many there are who, with criminal slothfulness and indifference, play their ignoble part with no thought of the great demands of science or of humanity pressing on them; human machines, vitalized with mere selfish instinct, who never move in any enterprise outside of the contracted circle of their own sordid interests, unless, perchance, they are driven to it with whip and spur; men who drivel over their daily round of office engagements and forced duties with the persistence and exclusiveness of an ass on a treadmill, and who make about as much progress in their profession as the aforesaid animal on the wheel, whose revolutions never advance his nose one solitary inch beyond the rack at which he feeds.

"Spiritless and indolent, they shrink like cravens from the more exalted duties of their position, and are seemingly content to eke out an inglorious and almost profitless life as dull and unproductive plodders in the beaten path, feeding from day to day, like professional mendicants, upon the intellectual crumbs that fall by the way from other men's brains."

"Prominent among the means for self-improvement, are dental periodicals. They are, in an eminent degree, worthy of our support and encouragement; and with an annual expenditure of less than twenty dollars, one may command every American journal devoted to dental science and art now published. They are the exponents, quarterly or monthly, of dentistry *as it is*, and they come to us teeming with the fresh experiences of every day practice like ever-gushing well-springs of pure water to slake our thirst for knowledge. They are the great heart of our literature, which through innumerable ramifications, send their vitalizing influences into every tissue of the professional organism, quickening all parts with new life and powers, and contributing more than any other instrumentality to the wonderful growth and progress of the profession. You cannot afford to be without these aids,—no investment will afford you such ample returns. To ignore them is to shut out the light from your laboratory and operating room. Without them, you will be distanced by competitors with half your capacities and industry. In this connection, allow me to suggest that the mere subscription support which you may give to these journals does

not wholly fulfil your obligations. When you have paid the subscription price, you have only settled with the publishers.

"Members of the profession who fill page after page with the rich stores of their daily observations and experience, that you and I may be profited thereby, have a right to expect the same generous offering of our gifts upon a common altar for the common good, and you will most assuredly be wanting in good faith to them, and recreant to your manifest obligations, if you fail to respond, in a like spirit of liberality, to their equitable demands. To omit so plain a duty would be very like living in charity upon your associates.

"The stated gatherings of the profession in conventions, local, State, and national, afford, also, distinguished opportunities for improvement. To these convocations, like devout pilgrims to some holy shrine, the liberal-minded men of the profession everywhere wend their way with their precious bequests of ripe experiences and carefully selected facts, to lay their gifts upon a common altar. From the multitude of offerings presented, some are scattered as chaff before the winds, while the grains, which remain to nourish and strengthen, are carefully gathered up and garnered, and anon are spread broadcast, to take root in productive soils, springing forth again with an hundred-fold increase to bless mankind.

"These conventions and societies are, indeed, in a most eminent degree, the touch-stones that test, with the certainty, almost, of infallibility, the validity and truth of every important fact and principle which concern us in practice. If errors are rendered plausible by specious speculations and dangerous sophistries, the keen dissections of verbal and open discussions expose their nakedness; if rendered attractive by captivating oratory, they are stripped of their claims and pretensions by the inexorable logic of every day experience. Thus, error is consumed, and from its ashes new lights spring forth, radiant with beauty, and enduring as truth itself. In these conventions many a priceless thought, under the inspiration of the moment, has come bubbling up to the surface, all unconsciously perhaps, and of obscure parentage it may be, but born to be clothed hereafter with immortality.

"Here the grim-visaged spirits of jealousy, envy, and distrust are exorcised, while old friendships are renewed and new ones formed; binding and cementing all together in one common, compact brotherhood.

"Here the arrogant and inflated pretensions and assumptions of addlebrained gasconaders have their wings clipped and their masks removed; while the timid are reassured, and modest merit is lifted up and patronized. Our conventions are emphatically schools for improvement, where every man is at once instructor and scholar, and no one may withhold himself from them without serious self-detriment, and loss of personal weight and character in his profession."

(From the "Dental Cosmos," April, 1860.)

## TO THE DENTAL PROFESSION.

At the meeting of the American Dental Association, held at Washington, D. C., July, 1860, the undersigned were appointed a committee "to confer with dental practitioners throughout the Union, with a view to the formation of local societies."

In the discharge of this duty the most feasible plan that suggests itself to us for laying the matter before the profession, is to take advantage of the facilities afforded by the dental journals.

We would respectfully suggest it to be a self-evident fact recognized by every reflecting mind, that innumerable advantages must accrue to the individual members as well as to the profession at large, by associated effort. Nothing is better calculated to break down local jealousies; to establish in their place agreeable and fraternal relations; to foster a desire for individual improvement, and beget that *esprit de corps* which, wherever it exists, has the tendency to elevate the character and standing of any profession. Taking this broad view of the matter, it is deeply to be regretted that our profession should not have had its local societies established long since in every state and town of any size in the Union. It is, however, gratifying to observe (and we take pleasure in recording the fact) that within the last year and a half a number of local associations have been formed, and we have reason to believe that the movement in favor of a national delegated association has had much to do with the organization of these societies. We trust their example will be followed by the profession in other sections of the country.

Having been appointed merely to confer with the profession on this subject, and as we have directed attention briefly to the advantages of associations, we do not feel it necessary to offer any further suggestions.

Trusting that the profession will feel the importance of acting promptly in this matter, we shall be happy to afford any information and assistance in our power that may be desired.

J. W. VAN OSTEN, Philadelphia, Pa.
W. W. ALLPORT, Chicago, Ill.
W. MUIR RODGERS, Shelbyville, Ky.
} Committee.

## WHO ARE DENTISTS?

Is the heading of an article written by Dr. Wm. A. Pease, and first published in the *Dental Register*, and subsequently copied into several other dental journals.

But for a few errors, and an evident disposition manifested on that part of the writer, to create prejudice against those engaged in the mechanical department of the profession, undervaluing the importance of an indispensable and useful branch of our art, we should have let the article pass without comment. And while we accord to every one the right of private judgment, if there are any in the profession who imagine for one moment that there were no dentists in existence before their time, and that all professional excellence will terminate when they make their exit, we would remind all such, that, however honest they may be in their opinion, nevertheless they are greatly mistaken. Whatever improvements have been made in our profession since 1840, or, as the writer will have it, 1854, has resulted from the labors of those eminent practitioners who laid the foundation of this success long prior to the period named above; and the fillings we meet with almost every day, which have endured the test for forty and fifty years, are evidence of a degree of perfection at that time, that challenges comparison with the best operations of the present day; while the clumsy bone work of that period, with spiral springs attached, whose very ghosts must have haunted the writer while penning the graphic description of the effect produced upon the expression and countenance of the wearer of a set of white, poorly adapted, and imperfectly arranged artificial teeth. These rude mechanical productions, which have long since vanished before the science, skill, and constant efforts of such men as Dr. John Allen and others, who have sacrificed a life of ease, left the operating-chair and its luxuriant surroundings and its comparative certain emoluments, for the dust and toil of the laboratory, in whose fierce fires are produced those prototypes of nature which are destined to command from all that admiration they so richly deserve. Will any one seriously undertake to impress the public with the idea that, the beautiful tint and shadings produced in block and continuous gum work, in which it requires but a slight draft upon the imagination to delude the observer into the belief that the blood does really circulate, and that it is part of the living tissue. When these results have been reached after years of toil, privation and pecuniary losses, will any one, we repeat, undertake to impress upon the public mind the idea that the talent employed in producing them, can "never rise above the customs of a craft or trade"? The *New York Dental Journal* would "recommend this article to those *individuals* who are *seeking* to elevate Mechanical Dentistry to *professional importance.*"

We were prepared to hear sentiments like the above from persons incompetent to manipulate, and lacking in the taste and judgment requisite to produce those results which are reached only by patient toil, and the application of a high order of discernment and sound discrimination, all of which must be combined with ready tact and mechanical execution in order to avoid those other results, "which every one knows to be artificial;" but we must confess that we had greatly mistaken the requirements of our profession, if those minds who have contributed so much toward filling up a great necessity in the profession, are to be regarded as not belonging to it, but are doomed to "never rise above the enstoms of a craft or trade," while those who are engaged in the less difficult and less perplexing branch of our profession arrogate to themselves as being "governed by the rules of a profession." What is meant by being governed by the rules of a profession is not very clear, but if we were to *guess* we should say that it means, that if a filling *stays* and preserves a tooth for any length of time, it is evidence of skill; but if it comes out, and the tooth is lost, it will be regarded as one of the "excepted" circumstances referred to by the writer in the commencement of his article, which is decidedly professional. The physician, in case the patient recovers under his treatment, claims the treatment was professional; but if the patient dies, it was an interference of Divine Providence; this is also professional to an extreme degree. The case is very different when an artificial denture is made; if the job don't fit the dentist is sure to get *fits*. The patient cannot be turned off by attributing the difficulty to an accident, even if the patient's mind was previously prepared to expect that accidents might occur; there is no use in trying to humbug the patient; the case must answer the purpose for which it was intended or there is trouble. We regret to see the growing disposition manifesting itself among a certain class of *operators* to ignore all who are not engaged in the speciality with themselves, or not having the title of D.D.S or M.D. attached to their names. To us the idea is simply absurd; a man may fill a badly decayed tooth well, even perfect, and not be a dentist; he may treat badly swollen or ulcerated gums successfully, and not be a dentist; he may attend college, and graduate and have all the titles conferred upon him within the gift of the faculties, and yet not be a dentist; a man may make an artificial denture possessing all the requisites, adapted to the case, exhibiting artistic taste and mechanical skill, and have a thorough knowledge of the best manner of manipulating all the materials entering into their composition, and not be a dentist; neither are we believers in *intuitive* dentists, the days of "*natural bone setters*" having passed away.

They are dentists, and they only, who by patient toil and study acquire a knowledge of all the causes producing diseases of the organs

which they are called upon to treat, and by the acquisition of that knowledge are able to arrest disease either by a direct operation or by the administration of constitutional remedies that will prevent further tendencies to derangement. We have known many who were seemingly perfect in their surgical operations, that were entirely incompetent to manipulate any of the simple mechanical operations indispensable in the construction of an artificial denture, or even an ordinary regulating case.

"Dental surgery," says Harris's Dic. of Medicine and Dental Surgery, "is that branch of medicine which has reference to the treatment of the diseases of the teeth and their connections, and which at the same time embrace the prothesis, or replacement of the loss of these organs with artificial substitutes." Again: "Dentistry (dental surgery) embracing everything pertaining to the treatment and replacement of the loss of the natural teeth. If this is the true difinition of dentistry, a dentist is one who treats all diseases of the mouth and teeth, and when there are no longer teeth to be treated, to supply their place with artificial substitutes."

The question then is, "Who are dentists?" we answer, every one is a dentist who understands his profession in all its parts, who can administer to the wants of his patients, and secure to them the advantages of our art in its fullest sense and greatest perfection. Any one deficient in any one branch, and consequently unable to perform an operation either in the mechanical, operating, or surgical department, or is unable to treat successfully any and all diseases of the dental organs and their adjacent parts, cannot be considered a dentist, any more than a man who may have an excellent remedy, a specific even, for a burn, cut, chapped lips or hands, would be considered a doctor; while, if the same man should become equally successful in treating all diseases, he would earn for himself and be fairly entitled to be called doctor, no matter whether he was ever inside of college walls or not. Webster says "a dentist is one whose occupation is to clean and extract teeth, or repair them when diseased;" this definition we presume is rather restricted to suit many, nevertheless it is sufficiently comprehensive to apply to a great number who are engaged in its practice at the present time. We are acquainted with many that have fairly earned the title of Dental Surgeon, who have never attended dental colleges; they have acquired a thorough knowledge of their profession by years of study and experience. These dentists have been students all their professional lives; are self-made men; they take a lively interest in everything that pertains to the well-being of the profession to which they stand identified; they labor for the common good; they are ever ready to acknowledge a successful operation performed by others, and to offer encouragement to aspiring genius, though

minus the titles others rely upon in too many instances for succes in life, in place of substantial qualifications and fitness for the position assumed. While we are pained to acknowledge that too many are engaged in both the mechanical and operating branches of the profession who are in no respect qualified by nature or education to discharge the duties of their calling, yet every one must acknowledge that poor fillings in teeth do a much greater injury to the patient, than would be produced by a clumsy-made set of artificial ones. In the first case, the patient having no means of knowing but that the operation was properly done, goes away, expecting the preservation of the teeth will result from the operation for which his money was paid, for a time realizing the truth that where "ignorance is bliss, it is folly to be wise." At no very distant day, however, he is painfully reminded that he has been duped, not out of his money only, but has the mortification of learning that the teeth are in such a condition as to render extraction necessary; but is told by way of consolation that their places can be supplied with artificial substitutes. If the patient is so unfortunate the second time as to fall into the hands of a mechanical dentist who possesses no more fitness for his calling than the other, the patient's ease, it must be confessed, is a hard one, and yet we are very much mistaken if we should have to go far, or look long to find many victims similarly circumstanced. We have no disposition to find unnecessary faults with this class of *operators*, but would suggest that they *must make haste*, or the public, will come to regard all such pretenders as common swindlers; and if they escape the merited punishment their reckless disregard of the welfare of their victims deserves, they will do better than we think they will. In closing, we would suggest to all who depreciate quackery in our profession, to insist that all legitimate operations in every branch of dentistry, shall come within the scope of professional requirements, and that the fostering hand of encouragement be extended to each. Those having a preference for any speciality can find ample scope for the exercise of individual taste and likings, without conflicting with those engaged in other departments, or degrading the profession by ignoring any one of the important operations belonging to it.

## THE BEST MEANS OF PRESERVING THE TEETH.

Paper read by Dr. Franklin before the Society of Dental Surgeons, of the City of New York, March 13th, 1861.

The question which has been under discussion before this Society at several of its last meetings, without doubt is among the most important which the mind of a dental surgeon is called upon to consider, viz., "the best means of preserving the teeth."

This question, however, in its strict construction, implies the preservation of the teeth "intact," and not necessarily the means to be employed to arrest disease in the tooth itself, after a portion of its substance has been lost; for when this is the case, at best we can preserve only that part of the organ remaining.

The language employed by our profession, when applied to the preservation of the teeth by filling, would hardly be admissible if used in many other surgical operations, for no surgeon, I imagine, would say he had preserved a hand or foot, when he had just removed one half of either of these organs with the knife. A knowledge of the best means of preserving the teeth from decay or disease, is of the utmost importance, in importance as far transcending the knowledge of treating them when diseased, as a knowledge of the laws of life and health are of more importance than a knowledge of treating disease.

For just in proportion as we understand the causes which tend to disease, are we able to treat disease understandingly, and if all mankind had lived in strict accordance with the laws of their being, the knowledge of physic and dentistry would not be worth acquiring. But unfortunately for our race, they have widely departed from the paths designed for them to tread, until disease is the rule and health the exception. This being the case, it is certainly laudable in every one engaged in the healing art, to labor to acquire that knowledge which shall enable him to mitigate the ills which so abundantly surround us on every hand; and while in the pursuit of this knowledge, the truly benevolent and inquiring mind cannot escape the conviction that all this disease and consequent misery are attributable to a departure in one way or another from the laws of health. The medical as well as the dental profession, from the time that the memory of man runneth not back, seem to have expended their energies in multiplying remedies for existing evils, until twenty-five cents will purchase a panacea for all our ills, and an artificial denture can be had for the price of a good pair of boots. So long as either of these professions shall rest satisfied with treating disease only, they fall far short of the true mission and objects of the healing art. For it is obvious to my mind that the science of treating disease must necessarily embrace a knowledge of all the causes tending to produce it, and once in possession of this knowledge, the withholding of its benefits from our fellow-men, and profiting by their ignorance, can hardly be reconciled with a just appreciation of our obligation to our kind. I am aware, sir, that the educational influences of our times are not particularly favorable to the development of a high order of disinterested benevolent effort; nevertheless, those who appreciate the importance of laboring to accomplish the greatest amount of good in the brief period allotted them here, will derive the utmost satisfaction from the consciousness of having warned

their less favored fellows, and by that warning may have saved some from the inevitable consequences of violated law. I trust that our profession will set the noble example to the world, that it is a beneficent as well as a liberal profession. To bring about this desirable end, there must be a full, free, and unreserved intercourse among its members; each must be stimulated by an honorable and earnest desire to excel. When the strife shall be, who will do the most good, help the readiest, and impart the freest, we may reasonably expect that our profession will be relieved from many that now claim membership with it. The most effectual way in my judgment to correct the evils so much complained of, and very justly too, would be, for the better part of the profession to so deport themselves in practice, conduct, and intercourse with each other and the public, as to leave no doubt in the minds of the intelligent part of the community of their superior attainments. That portion of society that have so little appreciation, and less discernment, for a time will monopolize the services of others whose qualifications are in keeping with their low estimation set upon dental operations. The means of preserving the teeth would be acquired by a thorough knowledge of all the causes producing decay. It has been difficult for scientific inquiring minds to reconcile one physiological peculiarity of the saliva and mucous secretions. Judging from the wondrous adaptability of all natural laws to the ends and purposes clearly intended to be accomplished by their legitimate exercise, we reason from analogy that all natural law, so far as it is permitted to act in unison with the objects of its Framer, is life-giving and health-sustaining, and when this result is no longer visible in animated life, it is obvious that a fundamental law has been disobeyed, for nature is not over exacting when we stray not too widely from the true path. The secretions from the salivary and mucous glands in health are more or less impregnated with acids, either of which, alone or in combination, acts with greater or less promptness upon the enamel as well as the dentine of all teeth. This chemical condition of the secretions of the mouth having long been known, many good men have come to the conclusion that decomposition of the teeth, by the solvent properties of these secretions, was a natural consequence and a part of the original purpose and design of our Maker when these destructive elements were incorporated into and became an essential component of our corporeal structure. This conclusion, however logically arrived at, is nevertheless an erroneous one, for I imagine Nature would never have expended her resources in a direction that necessarily tended to mar or destroy organs so indispensable to the carrying out of the great objects and ends of man's creation. Man to fulfil his mission must necessarily go through all the transitions clearly marked out for him—infancy, childhood, manhood, and old age. The withholding from him, while passing

through either of these transitions, any of the circumstances upon which development and perfection depend, detracts from the vital forces, and a corresponding defect will be visible somewhere, for Nature, like chemical combinations and mathematical axioms, never by the operation of the same laws produces diverse results.

The study of the changes through which the secretions of the whole body go by the transitions of heat and cold, by dense or rarefied air, by the food we eat, and fluids taken into the stomach, by rest or the want of it, by the exercise of the passions, hunger, thirst, joy, grief, anger, fear, or any derangement of the nervous system or vital forces, is intensely interesting to all, but especially so to the dentist, the success of whose operations often depends upon the normal healthy condition of these secretions. Healthy saliva, says Dr. Samuel Wright, of Edinburgh, who is acknowledged to be particularly learned upon this subject, is described as being a limpid fluid, having a faint blue tinge, and a slight degree of viscidity. The quantity of saliva and mucous secreted by different individuals under different circumstances varies considerably in quantity and quality. From Bidder and Schmidt's experiments it is thought that a man weighing 140 pounds will secrete from his submaxillaries about 1.45, and from his parotid about 2.25 ounces troy in an hour; deducting for sleep, the quantity would be about 3 pounds per day. The specific gravity of saliva and other fluids of the mouth varies at different times and from a great variety of causes. Dr. Wright found it always denser after a meal than before it, in the evening than early in the day. "It is commonly thickened by an abundant use of animal diet, by fatty food, and by oily fish. All alcoholic stimulants have a tendency to thicken the saliva, and in large quantities they not only alter its consistency, but materially diminish its activity. Its reaction has also been a subject of much discussion and observation, and, in my judgment, this peculiar physiological condition is of more importance to the dentist and to the community than any other fact developed by the experiments of Dr. Wright, whose observations extended to over five thousand different individuals. He says that alkalinity is essential to the proper performance of the physiological function of the saliva. He found the quantity of alkalies to vary considerably, but was of the opinion if at any time it should exceed one per cent. it was to be regarded as an indication of disease. The quantity of alkali is increased during digestion, and diminished in fasting. In fasting the saliva sometimes becomes acid; when from any cause the reaction is acid, Dr. Wright suggests the use of spirits or pepper to be taken into the mouth, under the stimulus of which, in a healthy person, the quantity of alkali is always very much increased. It was found that in smoking tobacco the quantity of alkali was very much diminished, while chewing tobacco is believed

to produce the reverse effects. This is probably owing to the stimulating effects of the tobacco upon the salivary glands, causing copious discharges from them, when its reaction is usually alkaline. This statement has been confirmed by Marshal and Garrod. They are inclined to attribute this to the rapidity of the discharge during a meal, and the slowness with which the secretions are formed at other times. They found that ordinarily but two or three drops were discharged by one parotid gland in a quarter of an hour, and that this was acid; but that in half a minute after a morsel had been taken into the mouth, the reaction was neutral, and within the minute, alkaline. This continued till about twenty minutes after the meal, when it again became acid.

This is accounted for by the fact of the general acidity of the mucous surfaces of the mouth, which is sufficient to overpower the feeble alkalinity of the saliva when secreted in small quantities. When the flow, however is increased, the saliva more than neutralizes the mucus, and hence we have the alkaline reaction. Saliva has a strong affinity for oxygen, absorbs it readily from the air, and imparts it to other bodies. It has been even said to oxidate pure gold and silver. Dr. Wright gives the following list of salivary diseases: deficient saliva, redundant saliva, fatty, sweet, albuminous, bilious, alkaline, fixed and ammoniacal, calcareous, saline, puriforme, fetid, acrid, colored, frothy, urinary, gelatinous and milky saliva. Each of the above conditions of diseased saliva are more or less deficient in their normal constituent elements, and in some of their condition highly destructive to the teeth. There are several purely physiological conditions not enumerated, and cannot be considered as diseased conditions of the secretions, such as the arrest or suspension of the action of the glands from a variety of causes, and producing more or less serious consequences. Acid saliva is the most destructive to the teeth; consequently with this condition at least every dentist should become familiar, in order to counteract its destructive tendencies. Piggot says, "The acids with which the saliva is at present known to be contaminated, are the acetic, lactic, hydrochloric, oxalic, and uric." He says, "It is a matter of great practical importance to ascertain the presence of these acids in the saliva, as they exert so powerful an action over the teeth, corroding them with extreme rapidity." . . . "Acid saliva may have a sour or an exaggerated salivary odor, both of which are increased by heat. It reddens litmus paper with greater or less intensity." Litmus paper may be obtained at Dr. Chilton's in this city, and of most dealers in drugs and chemicals.

A very excellent and sensitive test paper may be prepared by bruising purple dahlias, and extracting the coloring matter with alcohol; wetting the paper with the infusion, and drying, it is very sensitive, turning green by the action of alkalies, remaining blue in neutral solu-

tions, and becoming red in acid. For determining the changes which the secretions of the mouth undergo, this is much superior to litmus paper. The saliva is impregnated with lactic acid chiefly in gout, rheumatism, ague and fever, and diabetis; with acetic acid in scrofula, scorbutus, small pox, and protracted indigestion; with muriatic acid in simple gastric derangement, and from immoderate use of animal food; and with uric acid in gouty affections. When oxalic acid exists in the saliva, its presence will most likely be dependent upon depraved digestion or imperfect assimilation.

Acidity of the saliva is also apt to occur in various other general and local disorders, as in fevers, both typhoid and inflammatory types; in measles, prior to eruption, and often subsequent; in some fevers the acidity is sometimes so excessive as to corrode the gums and impart a sensible roughness to the teeth; in consumption, in protracted venereal diseases, in rickets, catarrhs, mumps, quinsy, cancers affecting any part of the digestive apparatus, worms, and tedious dentition of weakly or scrofulous children.

The practical deductions from the foregoing facts, are, first, that in all healthy subjects ordinarily, when the salivary glands are under no excitement from food, drink, or other stimulants, both the salivary and mucous glands secrete acids, which are only neutralized naturally by an excessive flow of the salivary glands during mastication, and on introducing stimulating or irritating substances into the mouth. If this is the true physiological condition, it must be obvious that the teeth, being bathed or submerged in the acidulated fluids at all times excepting while eating, and for a short time thereafter, are almost constantly liable to decomposition.

It must also be obvious if, by any slight derangement of the system, this acidulated condition becomes greatly intensified, the teeth, as a natural consequence, must, in addition, suffer in proportion to the derangement, and in the ratio of departure from the normal condition of these secretions. In some mental derangements, so extreme is the acid reaction, that parts of the body upon which the saliva may chance to come in contact, are excoriated by it. It is to these pathological conditions the inquiring mind must turn to find an explanation of the seeming incompatibility of creative force. By an examination of the normal constituent elements of the secretions of the parotid glands, we are enabled to disprove many erroneous theories in regard to the cause of decayed teeth, and of sensitive dentine. The parotid gland discharges its secretion through its duct steno, whose mouth is situated on the inside of the cheek, nearly opposite or between the first and second superior molars. These teeth, every dentist will have observed, are gnerally first attacked with disease or decay, and are among the first to be sacrificed. This is but a natural consequence of

their location and proximity to the ducts of the parotid glands, the cheek often pressing the mouth of the ducts directly upon the tooth or teeth. When this secretion is normal its solvent powers attack the teeth, and when their surfaces once become roughened, or disintegration has commenced, the surface of the teeth has much greater capacity of retention than before. Any superabundance of this secretion flows along the most natural channels, carrying destruction in its path, till, finally, it either expends its energies upon the teeth, or becomes neutralized by a more abundant flow of the same fluid, which for a time carries healing in its train by its alkaline preponderance. In the administration of alkalies to correct the acidity of the salivary secretions, if it is designed to be administered as an internal remedy, it is important that the carbonate of soda be employed, and not any of the alkalies made from land plants. Experiments show that the latter acts upon the urinary organs, and is collected and carried off through the urine, while the carbonate of soda taken into the stomach, produces almost instantaneous increased alkalinity of the secretions of the salivary glands. All alkaline, however, taken into the mouth, would neutralize for the time the acidity of these secretions. Friction upon the gums with simply brush and water, will produce for the time a strong alkaline reaction. It is my private opinion that more teeth could be saved with soda alone, that is now saved with gold, as it is employed by those calling themselves dentists in all parts of the country, good, bad, and indifferent, as we find them, for the reason that the best operator cannot save a tooth any great length of time where the tendencies to disintegration by the acid reaction of the secretions are clearly marked, as we often see in decayed teeth having a pearly, transparent, and semicartilaginous structure. What is called dry black rot would probably never produce the destruction of the teeth, so long as that peculiar condition existed, for this species of decay, as it is called, is evidence of a suspension of the disintegrating forces, and is the result of the alkaline preponderance of the salivary secretions.

I thank you all for the patient attention given me while reading this paper. I have only glanced at the many points embraced in it, either one of which furnishes facts worthy of the careful consideration of every one who desires to practice understandingly.

In conclusion, I will only add that it is my conviction that if we had lived upon coarse, hard, unbolted bread, made from any of the grains, and otherwise used simple dishes, fruits and vegetables, entirely abstaining from flesh meats and all stimulating drinks and condiments, and were permitted to otherwise follow the clearest dictates of nature, by having pure, uncontaminated air to breathe, with plenty of healthful exercise out of doors, and our labors equally divided, together with a reasonable share of moral and intellectual culture, and other circum-

stances being equally favorable, (and they are within the reach of all,) —if these had attended our pathway from infancy to manhood, I do not believe there would be further use for any of us in our present vocation.

## COMMUNICATION.

(For the "Vulcanite.")

*Oxford, February 21st*, 1861.

Dr. B. W. Franklin:—Dear Sir: I see by the "Vulcanite" that you have received many testimonials in favor of the vulcanite rubber as a base for artificial teeth, together with various suggestions as to the manner of using it, repairing, etc. But I have nowhere seen a use for it which I have found valuable; it is what I call "*jumping*" or underlaying old plates when the gums have receded, and left the artificial teeth too short, and the plate without its proper foundation. It works to a charm on all gold plates on the under jaw, especially in partial sets, as you know in such cases the gum will settle more than if it were an entire plate.

The manner of doing it is very simple: In the first place you want the gold plate clean, then make it rough where you want to build up with rubber by drilling in holes or cutting a series of burrs with a graver over the entire surface; then take a good plaster cast of the mouth and make a thin gutta percha plate, as you would for an ordinary rubber case; then place some strips of common gutta percha as thick as you may want on the gutta percha plate you have made, and then warm the gold plate and gutta percha, and press them together on the cast; when cool, try in the mouth, and see if you have raised it enough, if not, add more gutta percha; then proceed as with other rubber work. I have underlayed an old vulcanite plate in the same way, by cutting away a good portion of the old plate, and then preparing it so as to hold the new rubber firmly by drilling holes, etc., then proceed as above —it works well.

P. S. Rubber work is O. K. C. H. Eccleston.

## "PLASTER IMPRESSIONS AND OTHER THINGS."

(Continued from the February No. of the "Vulcanite.")

Since issuing our last number, we have been not a little amused at the views and opinions expressed by some members of the profession, in regard to the results of our experiments with plaster; some seem to regard them as being highly interesting, but cannot see the practical advantage to be gained by the knowledge of this law of the crystalization of plaster. For ourselves, we are so constituted that a new truth, when once demonstrated to our mind, assumes importance, and challenges our highest admiration, whether or not our mind is sufficiently developed to apply it to our own or others' necessities; once clearly proven to be truth, it *must* necessarily be important.

In these times of theorizing and speculation, when the mind is led to adopt systems which are supported by sophistry only, and adhered to because not comprehended, we attach but little importance to truth, which is always modest in its pretensions, and prefers waiting until embraced for the love of itself, rather than the benefits which she is ever ready to confer upon others. Many in our profession seem satisfied with their positions, opinions, efforts and results, never stopping to reflect whether they have possessed themselves of all the information attainable in regard to the pursuit in which they are engaged—never dreaming that their failures are in any manner attributable to a want of conformity to the laws regulating the material which they were manipulating. Nature never made provision for doing things in two or more ways; there seems to be no disposition manifested on her part to compromise with us. It is well that it is so, and though few, if any have acquired the knowledge requisite for perfect success, nevertheless those who closely observe, and as far as possible avoid those causes which tend to lead us from our aims and objects, no matter how apparently insignificant they may appear, will be more likely to succeed, than one who plods along, doing to-day that which proved a failure yesterday.

Progress, improvement, and innovation is the reflection of developmental law, and every new discovery is only evidence of our augmented perceptions of principles as old as nature herself; and their discovery are as often the result of accident as design, and it not unfrequently requires more capacity to apply newly discovered principles to the useful purposes of life, than was employed in their original discovery. All men are not organized for inventors, but all may avail themselves of the benefits derivable from the application of clearly defined scientific truths, and the nearer we approach to the appreciation of truth, the greater the desire to become in full possession of it.

There are but few callings known in which more skill is required or employed, than in the profession of dentistry; much of this valuable talent is lost to the profession and the world for the want of proper discipline and study of the laws which govern the various metals and other materials and substances which the dentist has to manipulate; the law of expansion and contraction of all metals, the difference of expansions and contraction of the different metals, single and when combined, and employed in connection with porcelain and non-metallic substances whose powers of expansion and contraction are still dissimilar, increasing the complication in every new combination.

In our last number we gave our method of obtaining plaster impressions of the superior arch. Our under impression cup which was introduced to the profession a few years ago, and which was favorably received by many of the first dentists in the country, is without doubt the best contrivance for taking the impression of the inferior ridge, that has ever been devised. See cut Fig. 7.

This cup, or rather double cup, has a groove or space in its centre, all the way around; the advantage of this groove is, that when the lower part of the cup is filled and the upper part one fourth full of plaster, and placed in position over the ridge, the operator, with the end of the finger, or other suitable means, can gently agitate the whole mass of plas-in the cup, and thus prevent air-bubbles, blank, or other imperfections on the surface of the impression.

Fig. 7.

The peculiar shape of the outer flanges of this cup is such as to distend the cheeks; and the lower and inner edges pressing upon the submaxillary and sublinqual glands, depresses them sufficient to prevent any folds or ligamental attachments from being embraced by the impression.

Partial impressions of either ridge should be taken first in wax, or, which is better, wax and paraffine melted together equal parts, with a suitably formed impression cup and the wax cut away as seen in cut Fig 8. That portion of the impression passing over and around the outer surface of the teeth, should be left standing, and the surface of the wax only cut down; where the plate is intended to rest, the eells around the standing teeth form guides for the correct introduction and position of the cup when plaster is introduced, and prevent the plaster from flowing around the teeth. In eases of converging crowns where

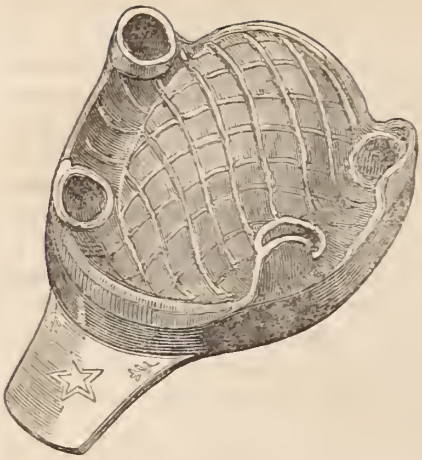

Fig. 8.

it is important to get a correct impression, as for the vulcanite base, we have succeeded by pressing a small piece of softened wax into the space between the teeth, from the outside to the centre of the ridge, allowing the wax to embrace a considerable portion of each of the teeth, then carefully remove this half of the impression, and cut it so as to present a perpendicular face over the centre of the ridge; we now chill this half of the impression and oil the face and replace it, and in the same manner take the impression of the inside; we now remove each section separately, and trim them so as to allow the plaster impression to come off without disturbing them; oil and place these sectional impressions in their places, and fasten them together by means of a V shaped piece of iron wire slightly heated, so as to hold the parts firmly together; we now take sufficient plaster and place in the wax impression as cut away, and carefully place it in position in the mouth; if the wax sections are beveled properly, the plaster impression will free itself without disturbing them; after removing the plaster impressions, the wire is withdrawn from the sectional pieces of wax, and they may be removed separately and put in their places, as shown in the plaster impression, and secured by a little melted wax, and the impression filled for the model; in cases where a single molar is standing, and it is not intended to be embraced by a clasp, we press a small piece of softened wax over the entire tooth, then remove the wax and trim so as to leave a thin shell of wax around the tooth, cut out the wax impression so as to allow it to pass over the tooth with the shell of wax over it; sometimes it may be necessary to cut a hole in the cup to allow the tooth to pass through. When ready to take the plaster impression replace the shell of wax over the tooth, and press it firmly on; take the plaster impression as though no tooth was standing—the plaster will flow around the shell, and bring it away with the impression.

There is one other important class of impressions which is often troublesome to obtain; viz., of the inferior ridge, when six or more of the front teeth are remaining; the absence of the under side teeth operates against the practical workings of an upper denture, and these

cases are always attended with more or less inconvenience to the patient when metallic plates are employed. Cut Fig. 9 is the best form of cup for these cases. We take a wax impression first, allowing the standing teeth to cut through the wax in the space in the cup, remove the cup, trim all surplus wax away, and cut away any wax projecting above the space in front; we now cut the impression down about one sixteenth of an inch or a little more, and place a small quantity of plaster into the wax form, and take a plaster impression of the parts; we proceed in this manner with all impressions. We may have occasion to speak of some of these again when treating of fitting plates. Before filling impressions for models we varnish and oil the surface, then only coat the impression with clear plaster one sixteenth of an inch in thickness, and just before it sets fill the balance with fine white sand or silex and plaster equal parts; this gives a smooth plaster surface to the model, more dense than when a larger quantity of clear plaster is used, there being no air-bubbles on the surface, and saves a large per cent. of the expansion. In vulcanite work the model is much easier removed from the inside of the plate than when clear plaster is employed. In preparing models for full cases for metallic bases, we usually build up a shoulder on the model, where the edge of the plate is to terminate, as seen in cut Fig. 10. We shall refer to this shoulder when speaking of swaging plates.

Fig. 9.

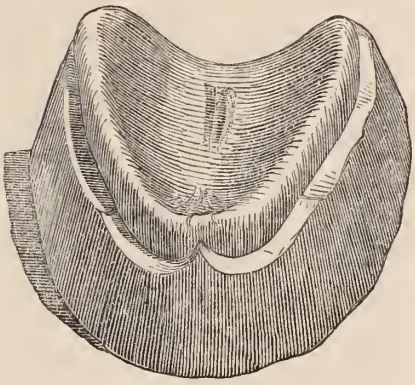

Fig. 10.

The plaster teeth on all partial models should be cut down to within

one sixteenth of an inch of the ridge; this not only facilitates moulding, but the plate may be struck up over a small portion of each tooth, and after the swaging is completed, that portion resting on the teeth may be cut away with the file, so as to fit the natural teeth as perfectly as may be desired. All models designed to be moulded should be coated with thin varnish—we prefer shellac for the reason that it has sufficient color to indicate when the surface is perfectly covered—and before moulding, the entire surface of the model should be coated with plumbago. The plan known as gunning for getting up dies was introduced several years since by Dr. T. B. Gunning of this city, and is thought by many to be superior to all other methods.

The impression is filled with equal parts of sand or fine silex and plaster; the model is placed in an iron dish having a flat bottom, four or five inches in diameter, and two and a half deep; the space around the model is filled up with the same batter, to a line where the boundary of the edge of the plate is to come, or to the shoulder of the model. The dish and contents is then to be placed over a moderate heat, and when near the temperature of the bed metal in a state of fusion, a cone-shaped iron, resembling a tinman's soldering copper, is heated to a dark red heat, and the point set into the centre of the model and the metal poured in around the iron to the depth required; when the metal is sufficiently chilled, the iron is withdrawn, and the hole filled with the same alloy; when cold, the model is broken out, the casting freed from all adhering plaster by washing with brush and water or otherwise, and washed over with a strong solution of sulphate of copper (blue vitriol); this gives the surface a thin copper coating, and prevents the metals from adhering together; a coat of carbon from an oil lamp or gas burner will answers the same purpose. The die is made from an alloy of two parts bismuth, two tin, and four of lead, melted together. This is harder than zinc, and melts at a much lower degree of heat, and is said not to shrink. Two or more dies are run into the bed, the first set by and reserved for the last swaging of the plate.

This method is highly prized by Dr. Gunning, whose mechanical manipulations are perhaps unequalled, and whose opinions are entitled to the highest consideration.

The advantages this process possesses over moulding in sand, are, first, by running the bed or counter die unto the model, the most difficult undercut or dovetailing models may be duplicated in metal without trouble. In cases of extreme undercuts, one side of the dovetail in the counter die may be filled with putty and the die proper run into the bed. When cold, remove the die and putty and fill the opposite side of the dovetail in the bed in the same manner, and run another die; when cold remove the putty from the bed. We now have two dies with one half of the dovetail on each; with these the plate can be

formed so as to fit cases, that would, by any other process, prove difficult, if, indeed, not impossible to fit. In moulding models we prefer sand and finely pulverized soapstone, in proportion of four parts of the former, to one of the latter, mixed with olive oil. The mixture, or when sand alone is used should be thoroughly worked or kneaded (this is what moulders call tempering, and is regarded by them as indispensable). In moulding models of the superior arch, when there is any under cut, the sectional flask invented by Dr. Geo. E. Hawes, of this city, will be found very useful. Cut Fig. 11 *a* is the under section of this flask with joints or hinges. Fig. 11 *b* is a ring corresponding in diameter to Fig. 11 *a*, and is secured to section *a* by means of projecting pins as seen in Fig. 11 *a* and *c*. Fig. 11 *c* is Fig. 11 *a* closed, with the model ready for the sand, which should be sifted into section *c*. and over the model, and well packed together. With a wooden spatula, or knife-shaped pine stick, carefully remove the sand until the centre of the ridge is exposed; then remove all the sand from the centre of the model and form the sand at the back end, so as to allow the upper half of the mould, when filled, to separate without breaking. Brush out or with a hand-bellows or otherwise remove any dust or particles from the surface of the model.

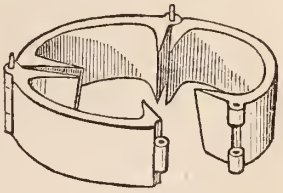

Fig. 11 *a*.

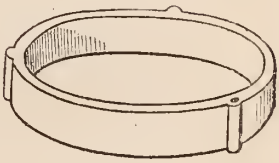

Fig. 11 *b*.

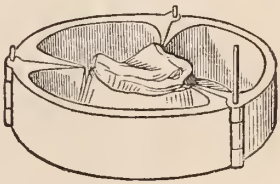

Fig. 11 *c*.

The ring, section *b*, is now placed unto section *c*, and fine pulverized soft wood charcoal is dusted unto the surface of the sand and model, to facilitate the separation of the two sections, when the upper one is filled with sand, after the upper half is filled and well packed, the sections are carefully separated; the impression of the inside of the model and to the centre of the ridge will be taken in the upper section, the long pin in section *c* is now withdrawn, and with a knife carefully pry the sections apart at the point where the pin was withdrawn; the sand will check or separate on a line with the point running to the front of the model, and also corresponding breaks in the sand will take place at each end of the ridge or opposite the the joints in the flask; the sections are to be swung out far enough to remove the model without danger of hitting any part of the sand; after the model is removed the sections are brought together, the pin reinserted, and section *b* is placed over section *c*, and

pressed firmly together; the two sections are now turned bottom side up, and the metal poured into the space previously occupied by the model.

It will be readily seen by the operation of this jointed sectional flask that the sand will be carried horizontal from the model, and consequently, no matter how dovetailing the model may be, the metallic die will be a perfect duplicate. The several methods practiced by many dentists in whom we have great confidence, viz., of dipping the plaster models into molten metals, to our mind is unphilosophical, and in our hands has proved unsatisfactory.

If zinc is employed for dies, great caution should be exercised in not overheating; the high degree of heat required to melt zinc, will, unless over a moderate fire, communicate the heat of the ladle to the fluid metal, raising its temperature several hundred degrees above the point required; this extra heat detracts from the integrity of the metal, the contraction is greater and it otherwise injures it. Zinc, however carefully melted, should never be used more than half a dozen times at most. A considerable per cent. of the contraction may be prevented by stirring the fluid metal while cooling, to break up the tendency to the coarse crystalization peculiar to this metal. If poured into the model just before solidification takes place, the crystaline structure will present a much closer appearance, is harder, and its specific gravity greater; but if too much reduced in temperature, the outlines of the casting are less sharp. We use tin and lead, equal parts, for the counter die, and form it by placing the zinc die face up in the sand, building sand around the die up to a line where we wish the edge of the plate to terminate; then place an iron ring over the die, the lower edge resting upon the sand, building the sand outside the ring to prevent the metal from running under, and pour the tin and lead into the ring, allowing the metal to strike the sand first, and flow over the surface of the die. The counter die should be of sufficient thickness to retain its form while swaging the plate; two or more of these counter dies may be cast on the zinc before the operation of swaging the plate has been commenced.

(To be continued.)

[CUT FROM AN OLD CIRCULAR.]

In consequence of Adam's sin,
Besides our own transgressings,
Disease and pain still riot in
This world, instead of blessings.

To mitigate life's numerous ills,
And bring, with peace of mind,
The benefits that Nature wills
To each of human kind,

Is labor worthy of the good
Of every age and clime,
To guide mankind in the safe road
That winds along through time?

The causes tending to decay
And death which we are seeing,
Are traced to where men disobey
The plain laws of their being.

T' enjoy uninterrupted health,
And all life's choicest blessings,
For one rule—be content to take
Your *puddings without dressings.*

Dispense also with *coffee hot*
Upon your morning table;
And use, for beverage from tea-pot,
*Water*—or *milk*, if able.

If, therefore, Rheumatism, Gout,
Dyspepsia and "the Horrors,"
You would avoid, *use simple fare*—
'T will save you many sorrows.

To keep the system free from pain,
Daily perform ablution
From reservoir of purest rain,
With liberal distribution.

To save your TEETH from fell decay,
As often as you use them,
Pick clean, or gently brush away
The food, but don't abuse them.

We all have heard of torturing pain
By Spanish Inquisition,
And mangled bodies of those slain
By cruel Superstition;

Of limb and sinew rent apart
From victims on the altar;
Of instruments of hellish art,
The stake, and hangman's halter;

Of nameless sanguinary strife
Upon the battle-plain;
Of death by the assassin's knife,
And slavery's galling chain;

Of *tremens* and the suicide,
With brains all blown asunder;
Of Murder, and Infanticide,
And horrors without number;

But *Tooth-Ache*, when it once sets in,
With earnest maceration,
All else would almost seem to win
Our praise and admiration!

To save you, then, from being killed
By Tooth-Ache or extraction,
You'd better have the grumblers *filled*
With gold, to satisfaction.

This thing, well done, will surely save
Those organs from decaying;
And you will sink into the grave
The laws of Health obeying.

But when the gums are *ulcered* o'er,
And pain makes you distracted,
There's nothing will relieve the sore
Like having Teeth *extracted*.

And when the cheeks are falling in,
And Beauty sadly fails us,
And nose descends to woo the chin,
And friends enquire what ails us;

How changed the voice,—the features all!
And Reason keeps a-saying,
"Why don't you on the dentist call—
Why should you keep delaying?"

There's "balm in Gilead" in our art;
There's magic in the sequel,
That carries joy to many a heart,
And pleasure without equal.

Restoring age the bloom of youth,
And smoothing wrinkled faces,
Are what we daily do in truth,
In multitudes of cases.

In days of old, before our skill
Was to mankind imparted,
The Teeth once lost, 'twas such an ill,
They died quite broken-hearted.

Our prices now are moderate,
Compared with other places;
Besides, we have *reduced* of late
On jobs in certain cases.

The poor, we yet without delay
Attend to at *half-prices;*
And, though disqualified to pay,
Their work still just as nice is.

*Four shillings* only is our charge
For common tooth extracting;
For filling, (if not over-large,)
*Eight shillings* we're exacting.

We do our work for *ready pay;*
And if the job don't answer,
Refund the money any day,
With interest and our thanks, Sir!

For patronage thus heretofore
So liberally extended,
We thank you all and evermore,
Who have our cause befriended.

Our efforts we shall now renew
To meet your approbation,
By doing work the best we know—
'Tis our determination.

We have on hand and keep for sale
Tooth-Powder, Pick and Brushes;
And remedies that seldom fail;
With Tinctures, Pastes and Washes—etc.

Those having little experience in the Vulcanite Base we take great pleasure in referring to the following list of licensees of the American Hard Rubber Co.

Many other members of the profession in all parts of the country have patronized our Agency, (No. 73 Bleecker Street,) by sending their cases to us to be vulcanized, etc., numbering in all over 1400 sets of teeth, within the last year, which have been put up in our laboratory in this city. We question if any other style of work has attained to so great a popularity in this or any other country.

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" McClure, J. B., Carrollton, Miss.

" Newton, Hartford, Ct.
" Naramore, J., Rochester, N. Y.
" Nolan, D. S.. Boston, Mass.
" Nichols, J. A., Lowville, N. Y.
" Norris, J., Charlottesville, Va.
" Norcross, D. L., Fredonia, N. Y.
" Noble, W. H., Mt. Morris, N. Y.

" Oliver, W. G., Buffalo, N. Y.

" Pruden, T. F., Hoboken, N. J.
" Parson, W. E., New York City.
" Porter, C. B., Ann Arbor, Mich.
" Priest & Wells, Utica, N. Y.
" Pelton, J. A. & H. P., Middletown, Conn.
" Pursell, A. E., Madison, Ind.
" Perkins, J. A., Albany, N. Y.
" Peebles & Dunham, St. Louis, Mo.
" Payne, Jos., Bloomington, Ill.
" Paterson, Geo., Augusta, Ga.
" Paine, Geo. L., Xenia, O.
" Palmer, C., Warren, O.
" Price, C. B., Jamestown, N. Y.
" Peck, H. B., Wolcott, N. Y.
" Parmly, G. W., New Orleans, La.
" Proctor & Allen, Rochester, N. Y.
" Pray & Russell, Great Falls, N. H.

" Roberts, H. N., Rutland, Vt.
" Robbins, A. B., Meadville, Pa.
" Rodrigues, B. A., Charleston, S. C.
" Robinson, S. M., Watertown, N. Y.
" Rogers, L. W., Utica, N. Y.
" Robinson, B. F., Cleveland, O.
" Rawson, J. B., Jamestown, N. Y.
" Richardson, Jos., Cincinnati, O.
" Robinson, J. A., Jackson, Mich.
" Russell, R., Nashville, Tenn.
" Rice, A., Spencerport, N. Y.
" Reynolds, R. G., Waterbury, Conn.
" Ryder, W. E., Tuscaloosa, Ala.
" Rogers, J. W., Rochester, N. Y.
" Requa, J., Rochester, N. Y.
" Ramsay, J., Springfield, O.
" Rose, B. A., Urbana, O.
" Ross, N. D., Troy, N. Y.
" Roberts, W. H., Richmond, Va.

Dr. Roberts, Spencer, Philadelphia, Pa.
" Reese, G. W., Columbus, Ga.
" Roberts & Gregg, Columbia, S. C.

" Searle, F., Springfield, Mass.
" Sumner, C. G., Norwich, N. Y.
" Swartly & Shult, Pennsburgh, Pa.
" Snow, R. G., Buffalo, N. Y.
" Smith, D. D. & A. T., Syracuse, N. Y.
" Spencer & Simmons, Providence, R. I.
" Salmon, E., Lima, N. Y.
" Smedley, A. P., Media, Pa.
" Sylvester & Jameson, Lyons, N. Y.
" Strickland, B., Cleveland, O.
" Spencer, Geo. W., Pittsburgh, Pa.
" Steinburg, David, New York City.
" Smyth, Job, Hallsport, N. Y.
" Small, M. W., Woonsocket, R. I.
" Shattuck, W. H., Janesville, Wis.
" Scroggs, J. A., Galena, Ill.
" Siddall, J. F., Oberlin, O.
" Spalding, C. W., St. Louis, Mo.
" Sohn, E. C., Galesborough, Ill.
" Shower, E., Nashville, Tenn.
" Smith, J., Dover, N. H.
" Smith, B. F., New Orleans, La.
" Seger, H., Montgomery, Ala.
" Scranton, J. N., Bennington, Vt.
" Stinson, Wm. H., Baltimore, Md.
" Skinner, E. M., Syracuse, N. Y.
" Smith, A. S., Oswego, "
" Scott, Quincy A., Pittsburgh, Pa.
" Stoddard, Wm. F., New London, Conn.
" Simmonds, J. L., Boston, Mass.
" Saunders, A. A., Cherry Valley, N. Y.
" Schuyler, J. E., Hudson, N. Y.
" Stebbins, N., Pittsburgh, Pa.
" Scott, R., Greensboro', N. C.
" Scott, H. R., Franklin, N. Y.
" Stevens, N., Batavia, N. Y.
" Sweet & Easton, Pontiac, Ill.
" Shirley & Retter, Jacksonville, Ill.

" Thompson, C. A., Westfield, N. Y.
" Terry, Alfred, Norwalk, O.
" Taylor, Jas., Cincinnati, O.
" Todd, A. W., Montgomery, Ala.
" Tewksbury, H. L., Mount Morris, N. Y.
" Tripp, Geo. W., Auburn, N. Y.
" Tower, H. T., Lyons, "
" Truesdell & Creighton, Elgin, Ill.
" Trapp, J., Williamsport, Pa.

Dr. Van Vleck, Wm. B., Hudson, N.Y.
" Van Vleck, V., Hamilton, N. Y.
" Vinal, G. A. W., Andover, Mass.
" Wright, S., Homer, N. Y.
" Wright, W. F., Pittsburgh, Pa.
" Wanzer, H. C., Rochester, N. Y.
" Westlake, A. W., Rahway, N. J.
" White, Thos. A., Detroit, Mich.
" Whitney, B. F., Buffalo, N. Y.
" Westcott, A., Syracuse, N. Y.
" Wilson, E. F., Rochester, N. Y.
" Walters, L. D., Lockport, N. Y.
" Whiting & Benedict, Detroit, Mich.
" Watt, Geo., Xenia, O.
Dr. Wadsworth, H. N., Washington, D. C.
" Wayt, J. H., Charlotte, N. C.
" Wilkinson, A. L., Huntsville, Ala.
" Ward, S. L. & W. G., Lowell, Mass.
" White, H. R., Utica, N. Y.
" Wheeler, W. H., Baltimore, Md.
" Way, L. E., Lee, Mass.
" Williams, M. W., Honesdale, Pa.
" Wood, B., Nashville, Tenn.
" Woodruff, U., Canandaigua, N. Y.
" Wilson, E. T. & Son, Boston, Mass.
" White & Weller, Durham, N. Y.
" Young, A. J., Dover, N. H.

## ADDITIONS.

Dr. Barcroft, A., Elderton, Pa.
" Bowdoin, W. L., Salem, Mass.
" Currier, Geo. H., " "
" Coe, H. A., Greensboro, Ga.
" Dunnavant, W. C., Baltimore, Md.
" Eakert, J. K. Oswego, N. Y.
" Feeman, J., Somerset, O.
" Groshon, A. E. & Son, Washington, D. C.
" Hawes, Elmer, Manchester, Mich.
" Herrbold, John, Jacksonville, Oregon.
" Hale, Nathan G., Windsor, Vt.
" Hitchcock, D. K., Boston, Mass.
" Levason, Lewis, Nevada, Cal.
" Little, J. W., Concord, N. H.
" Parker, Lewis, Potsdam, N. Y.
" Reynolds & Reynolds, Columbia, S. C.
" Stratton & Walker, Keen, N. H.
" Shepherd, S. M., Petersburgh, Va.
" Stark, F. G., Lexington Miss.
" Tully, A. W., Petersburgh, Va.
" Ward, J. B., Hickman, Ky.

# EDITORIAL.

In answer to numerous letters received from Licensees, Agents, and friends of the American Hard Rubber Company, we would reply that the Company are pressing the suits now pending, as fast as the *Law will allow.* Every obstacle is placed in the way, to prevent a final decision, that the fruitful brain of the opposition can devise. Time, patience, and determination on the part of the *Company* will we believe bring this controversy to a speedy close. In every suit brought against infringers heretofore, they have in every case withdrawn from the contest and allowed judgment to be rendered against them. The suits now pending we believe will be contested with the best legal talent in the country, and the parties against whom the suits are brought, seem in earnest in their defence, and for the first time show a manly disposition to fight the thing to the end. Of the result the profession will be duly apprised.

## THE SOCIETY OF DENTAL SURGEONS OF THE CITY OF NEW YORK.

This Society, is now in the second year of its existence, and it is gratifying to be able to announce to our Contemporary Association, that a portion of the profession in New York City recognize and appreciate the benefits of associated efforts. The meetings of this society, the past year have been generally well attended, discussions have been conducted in a spirit of true inquiry, and much practical detail in regard to both the operating and mechanical department of our profession has been elicited, and we predict, that before the close of the current year, this society will have a good Dental Library, Museum, and all the evidences of prosperity and permanent usefulness. At the annual meeting of the society, held March 13th, 1861, the following officers were elected for the ensuing year.

President, Dr. F. H. Clark; First Vice-President, Dr. John Allen; Second Vice-President, Dr. W. B. Roberts; Secretary, Dr. E. C. Rushmore; Corresponding Secretary, Dr. B. W. Franklin; Treasurer, Dr. Jas. T. Stratton; Librarian, Dr. W. B. Hurd; Executive Committee, B. W. Franklin, T. H. Burras, John Allen.

## WHO IS RESPONSIBLE?—NUMBER TWO.

As the question of responsibility has been raised in one department of our art, and we think satisfactorily settled, it may not be unimportant to the profession to extend our inquiries into the responsibilities of the Teeth Manufacturers, upon whom the success and durability of all artificial dentures so much depend. It matters not how much skill is expended, or what measure of success is promised on the completion of our work, if the teeth themselves are defective in any one important particular; failure, sooner or later, must result. Who would be held responsible in a court of justice if a dentist is induced to purchase teeth of a maker who advertises to make teeth equal to any in the market, and they prove not to be so, the dentist relying upon the representation of the tooth-maker, and not having the means of knowing the difference, purchases and mounts the teeth, unconscious of their weakness? If the case is for continuous gum work, and the teeth, in the extreme heat required to fuse the body, should puff out, distorting the arrangement and otherwise disfiguring the faces of the teeth, to such an extent as to render it necessary to make the case over again, it must be obvious the dentist would sustain a great loss, both in time and money, and from a cause in which he is not at fault. Or in the case of the Vulcanite Base, if the pins should pull out of the teeth, in consequence of being imperfectly secured; or from the teeth being brittle; or when said teeth are mounted on metallic plates, and are liable to failures from both of the above causes; and when the maker persists in selling such teeth, after being informed by those having used them, and having experienced the losses incident upon said failures, we submit the question, Who should be held responsible? As our neighbors of the *New York Dental Journal* questions our logic, we would respectfully submit this question of "Who is responsible?" to them for solution.

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Those of our readers who may have any especial desire to become familiar with the *cant slang of low Theatrical life* we would refer to the last number of the *New York Dental Journal.*

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## "DENTISTS' MEMORANDUM,"

A BOOK OF ENGAGEMENTS, AND MANUAL FOR READY REFERENCE

Is the title of a neat little Pocket edition, in diary form, for the use of dentists; published by John T. Toland, 38 West Fourth St., Cincinnati, Ohio.

This work is so arranged that every week-day throughout the year 1861 can be used for keeping the accounts of all operations performed. Each hour of the day, from eight in the morning, until five in the afternoon, is divided into tabular form, for recording engagements. Dollar and cent lines

are ruled so as to enter the charge for operations against each engagement, with the name of the person for whom performed; together with a large number of valuable receipts, for Mouth Washes, Tooth Powders, Tooth Pastes, Washes for Inflamed Gums, Zinc Paste for filling teeth ("Os-Artificial" Osteoplastic, &c.) Toothache Drops, Gold and Silver Solders, Varnishes for Models, Treatment for Neuralgia, Exposed Nerves and Sensitive Dentine, Hemorrhage, Tempering Instruments, Fungus Growths, Filling Cavities, &c., &c. Making all together, in a small and convenient form, one of the most convenient practical and useful works that we have seen; exhibiting not only taste in the arrangement, but an appreciation of the wants of the profession generally. Price $1 00.

## AMERICAN DENTAL CONVENTION.

The Seventh Annual Meeting of the American Dental Convention, will be held on Tuesday, the 13th day of August next, in the city of New Haven, Connecticut; and as the New England States are awake to the interests of the whole profession, it is but reasonable to presume this meeting will be one of the largest as well as the most interesting of any of its predecessors.

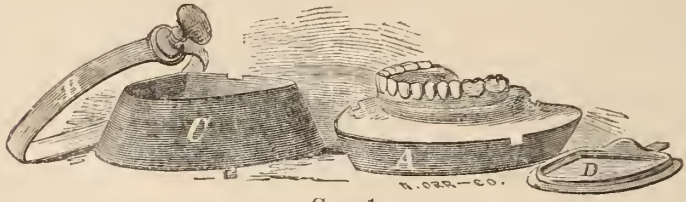
To the meetings of this Convention all practitioners of dentistry are cordially invited and freely admitted. There our art finds many earnest devotees and admirers congregated to pay annual devotion at her shrine, and to pledge themselves, each with the other, to press forward her claims and advocate her pretensions. The genius of our science is onward to the discovery of new truths, enlarged principles, broader views, and more perfect practice, and in the conscious strength of her admirers she holds her high destiny with a steady, onward course. The magic wand of science is scattering the thick mists of ignorance and illiberality, and when the lights of demonstrated truths shall dispel for ever the last vestige of prejudice and ignorance, we shall then behold her standing forth in the light of a better dispensation.

Our profession is yet in its infancy, and much is still to be learned; but the great features are already outlined and the course of future inquiry is fixed; while far more has been already developed than is reduced to general practice, or heartily received by the mass of our profession. In view of the requirements of our art upon every one who desires to occupy a commanding position, we would urge the necessity of attending the next annual meeting of the American Dental Convention at New Haven, and that they will be prepared to bring forward their generous offerings, and deposit them on the common altar of our beloved science. Our devotion to our common cause, the welfare of our whole profession, require efforts calculated to elevate the profession and not a few of its members, our feeble efforts shall be exerted to secure the greatest good to the greatest numbers:—and thus we labor, conscious of the approving smiles of the great "spirit" of him who devoted his best energies, while living, to inaugurate the Ameri-

can Dental Convention. Long may its efforts continue, dispensing its privileges benefits, and honors upon all, without money, price, or narrow exclusiveness.

## DIRECTIONS FOR PUTTING UP THE VULCANITE BASE.

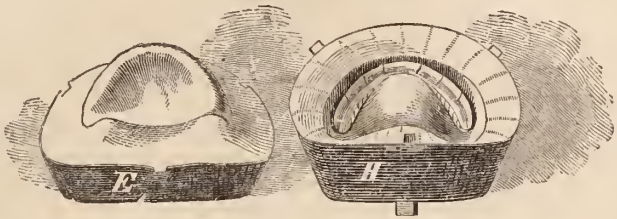
After a thin plaster model is obtained from a *perfect impression*, adapt a gutta percha or wax plate to the model, the size, thickness, and form required; with this get the bite or articulation of the mouth, the same as with a metal plate; arrange the teeth to the wax, the same as for other styles of work, being careful to bend the pins in the teeth, to form hooks downward or sideways, or both, as the teeth may require. After the teeth are arranged, and the proper expression given, build wax around the teeth, as desired when the vulcanite is substituted. This process duplicates the wax form in the most perfect manner. The wax should be smoothed with a warm spatula, and a little wax melted around the edge of the plate to fasten it to the model, to prevent any plaster from running under the plate when the upper half of the flask is filled. Some little pains and taste, at this stage of the work, will save much time in finishing after the work is vulcanized. The model, with the teeth and wax form upon it, is set, teeth up, in the under side of the flask, and filled with fresh-mixed plaster even with the edge, or to a line that will admit of a separation, when the remaining half of the flask is put together and filled. Cut 1, with teeth, represents a case in the




Cut 1.

lower half of the flask, ready for the upper half. We now varnish the plaster with shellac varnish; when dry, oil the varnished surface, then place the upper section in its place, and fill with fresh-mixed plaster, being careful to fill every part complete, allowing no air bubbles in the plaster. It is of the utmost importance that the plaster be worked so as to make a homogeneous and solid mass. The cap or top of the flask may now be placed in position, and the clamp or band screwed around the flask. After the plaster has sufficiently set, warm the flask and contents to about blood heat, or a little above, and gently separete; the teeth will be found firmly held in the upper section, with the temporary plate and wax attached. Now carefully remove the plate and wax, cleaning away all adhering wax from

around the teeth, and from between the pins, as seen in cut 2. We now se the upper half, containing the teeth, near the fire, and warm it, gently at first, increasing till quite hot. We now cut the rubber into strips of suitable width and length convenient to fill in and around the pins and teeth, and for the plate, and soften them by placing them on a hot brick or in any



Cut 2.

other convenient manner. A tin vessel with a flat cover, containing boiling water, is the best, as there is no danger with it of overheating the rubber. When it is soft and sticky, we commence packing narrow strips around the pins, and in the grooves on the anterior side of the base of the teeth, being careful not to allow any plaster, or other foreign substances, to work into the rubber. Proceed in this manner, adding piece after piece until the space occupied by the plate and wax is a little more than full. The part of the flask containing the model should be kept cold. The two parts may now be brought together, and a gentle pressure applied. If any blank places are visible on taking the flask apart, more gum may be added. We now cut a series of grooves, one-eighth of an inch in width and depth, from the gum to the outer edge of the plaster, as seen in cut 2. These grooves permit any surplus gum to escape when the flask is screwed together. Some are in the habit of working tin-foil on to the model, after melting a thin coating of wax over the surface of the model, or by wetting the surface with any mucilaginous gum, or liquid silex, and carefully rubbing the foil down smooth on to the model. After the case is vulcanized, the foil can be dissolved with hydrochloric acid. The foil prevents the plaster from coming in contact with the vulcanite and the under surface of the plate, presenting a much more comely appearance. The flask is now to be put together, the two edges being kept as nearly parallel as possible, the clamp placed on or around the flask so as to bring it together as even and uniform as possible. We now gently screw the flask partly down, and set it in a warm place for a short time, so as to give the gum time to yield under the pressure, as well as to prevent the teeth from being displaced by a too sudden force, starting the screw at short intervals until the parts come together. As a test for the completion of the vulcanization, twist a little of the gum around the screw outside of the flask; this, in case of any mistake in time, or otherwise, will give the operator a correct idea of the condition of the gum inside, without being under the necessity of opening the flask. If too little done, it may be replaced in the heater and vulcanized over. The flask may be placed under water in the heater; one hour at 315,

320, or 325 degrees is sufficient time to vulcanize the rubber. The degree of heat required to do good work may vary a little, in consequence of the variation in the thermometers. The best results, however, are when the vulcanite presents the consistency of horn under the scraping. If too long time is given in vulcanizing, it is more dark in color, and less tenacious. To prevent the gum from working between the joints of the teeth after the wax is removed, as seen in cut 2, fill the joints with dry plaster, and saturate with liquid silex. To finish the work, use coarse files, and scrapers of various shapes and sizes; then fine sand-paper or emery-cloth, cork wheels, and fine ground pumice-stone and water, cotton wheels, or very fine brush wheels, and whiting, or prepared chalk, and water. The vulcanite rubber is susceptible of a fine and beautiful polish, and the more perfectly it is finished the less likely it will be to retain minute particles upon its surface. The color of the work may be improved by placing it in a glass vessel under alcohol, and setting it in the sun for a few hours.

The form of partial cases can be changed, after being vulcanized, by covering the surface with sweet oil, and holding it near a fire, or over a spirit-lamp, care being taken not to burn it; when quite hot the vulcanite becomes softened, and very considerable change may be made, and when cold it will retain the shape and position given to it. These changes can be made any number of times without impairing its strength or elasticity.

In cases of misfitting of vulcanite plates, in consequence of wrong impressions, or absorption, or otherwise, take another impression of the mouth, fill for the model, and cut or scrape away the rubber so as to bring the plate reasonably close on to the new model; secure the plate to the model by melting wax along its edge, and set the case and model into the flask, the same as a new one. After the plaster has set, separate the flask; the part containing the teeth and plate is to be heated up until the rubber is quite soft, when it can be removed with ease and new rubber substituted, saving the articulation complete; the case is then to be vulcanized as at first.

# BUSINESS NOTICE.


## THE VULCANITE DENTAL AGENCY AND DENTAL DEPOT,

No. 73 BLEECKER STREET, NEW YORK.

Our Agency is removed to the large building, No. 73 Bleecker Street, first door from the Manhattan Savings Bank, corner of Bleecker Street and Broadway, New York.

The constantly increasing business of this Agency and the large number of orders we are daily receiving from all parts of the country, for every description of dental goods, have determined us to open a Depot in connection with the general business of the Agency, at which place the profession can be furnished with every thing required in the practice of dentistry. Our arrangements with manufacturers are such as to enable us to furnish every article required by the profession at the manufacturers' lowest cash prices. We shall offer all kinds of dental goods to cash customers at a discount from prices heretofore paid by them. We intend to keep the best selected assortment of Teeth (adapted to all the different styles of work) that was ever offered for sale at any one Depot in the country, comprising all the best makers' Teeth, viz—Porter's, Jones & White's, Mintzer & Co.'s, Jenness & Rubencame's, Oram & Armstrong's, Stockton's, Kerring's, and Eccleston's, making an assortment to select from not to be found at any other establishment in this city.

We are prepared to furnish Operating Chairs and Office Furniture, Laboratory Tools, Apparatus and Machinery, Rolling Mills, Forges, Furnaces, and Lathes, and in fact every thing required by the dentist, including the largest and best assortment of Vulcanizers, to be found at any other establishment. Our terms are cash. We are willing to divide the profits in the start with paying customers; *others we do not want.*

Those ordering goods to be forwarded by Express, to save expense of collecting and large discounts, will send us a draft on New York or other current funds in amount sufficient to cover the bill of goods ordered, and any balance over will be returned in specie with the package. We are compelled to this course from the fact, that the discounts in this city are in many cases, more than double to what the exchange would be on money at the place where the Dentist resides, and where their money is at par. Any Dentist residing at a distance from the city ordering five sets of teeth at a time will be allowed a discount of five per cent. from the lowest cash price that the same teeth can be bought for, at any other place in the city. In addition to the five per cent. we will send to his address Twenty sets of teeth from which he can make selections; we will pay the express charges both ways, thus giving our customers at a distance every advantage that the City Dentists enjoy. Every article sold by us not answering the description, will be taken back without expense to the purchaser.

Address B. W. FRANKLIN, Agent,
No. 73 Bleecker Street, New York.

A limited number of advertisements will be inserted in the Vulcanite at the following rates:

| | | | |
|---|---|---|---|
| One page, one year, . . | $20 00 | One page, one insertion, . | $8 00 |
| Half page, . . . . | 12 00 | Half page, . . . . | 5 00 |
| Quarter page, . . . | 7 00 | Quarter page, . . . . | 3 00 |

Address "VULCANITE," No. 73 BLEECKER ST., N. Y.

## BOOKS RECEIVED.

THE "Dental Register of the West." Edited by J. Taft and Geo. Watt. J. T. Toland, publisher and proprietor, Cincinnati, O. Monthly, at $3 00 per annum in advance.

The "Dental Cosmos." Edited by J. D. White, J. H. McQuillen, and Geo. S. Ziegler. Jones & White, publishers, Philadelphia, Pa. Monthly, $2 50 per annum in advance.

"The Southern Dental Examiner." Edited by J. P. H. Brown and Geo. J. Fouke. Brown and Hape, publishers and proprietors, Atlanta, Ga. Monthly, $1 00 per annum in advance.

"Cincinnati Dental Lamp." Edited by J. M. Brown, Cincinnati, O. Quarterly, 25 cts. per annum in advance.

The "American Dental Review." Published by A. M. Leslie, St. Louis, Mo. Quarterly, $1 00 per annum in advance.

The "Dental Enterprise." Edited by H. Snowden, Baltimore, Md. Monthly, 50 cts. per annum in advance.

"Revue Odontotechnique." Edited by T. R. Hammond, Paris, France.

"L'Art Dentaire." Edited by A. Preterre, Paris, France. Monthly, $5 00 per annum.

We would advise every dentist in the United States to subscribe for one or more of the above journals. Parties sending to us for dental goods can enclose the price of subscription, and we will have either of the above-named journals forwarded as per order. Try them—it would be a paying investment; better than money at interest. Dividends declared quarterly and monthly are paying institutions. *We repeat*, try them and see.

# THE VULCANITE.

**Vol. II.** **AUGUST, 1861.** **No. 2.**

## PROCEEDINGS OF THE SEVENTH ANNUAL MEETING OF THE AMERICAN DENTAL CONVENTION, HELD IN NEW HAVEN, CT., AUGUST 6TH, 1861.

REPORTED FOR THE "VULCANITE" BY PROF. GEO. F. BARKER, OF WHEATON, ILL.

### FIRST DAY—MORNING.

The Seventh Annual Meeting of this Convention came to order in "Music Hall," New Haven, at 10¾ o'clock on Tuesday morning, Aug. 6th. Dr. T. L. Buckingham of Philadelphia, President, in the chair. The minutes of the last Convention held at Saratoga, were read by the Recording Secretary, Dr. B. W. Franklin of New York City, and approved.

The next business being the admission of members, a discussion took place concerning the manner in which they should be received. Dr. Rogers (Utica, N. Y.) suggested that not to let this matter remain as it has been; those wishing to become members pay the Treasurer their subscriptions, and then he issue tickets of admission, which should be necessary to admit to the floor of the hall, unless by invitation of the President.

Dr. Franklin opposed the issuing of tickets, and urged the great propriety of throwing open the hall free to any one to hear; and he wished that men, women, and children would fill the galleries, and receive education on a subject of so much importance to health.

On motion of Dr. Roberts (of New York) it was voted that those should be members who should sign the roll and pay their assessment, $2. Seventy members were present, signed the roll and paid their fee.

The Treasurer, Dr. A. N. Priest (Utica, N. Y.), made his report which was accepted, after the approval of the Auditing Committee appointed for the purpose, consisting of Drs. J. Allen and T. H. Burras of New York.

The report of the Executive Committee being called for, Dr. F. Searle (of Springfield, Mass.) stated that Dr. F. Y. Clarke of Savannah, having seceded, they had elected Dr. B. T. Whitney (Buffalo, N. Y.) as their chairman.

Dr. Whitney reported that as Dr. Clarke retained the programme

prepared at the previous meeting, a new one was prepared, which was the occasion of delay in their issue. Dr. Clarke had been written to on the subject, but no answer had been received by the Committee. Neither of the other members of the Committee kept a copy.

Dr. Franklin called for the correspondence of the Corresponding Secretary with Dr. Clarke as a reason why Dr. Clarke was not with the Convention. Dr. Wetherbee (Boston) had received a letter from him which might have been acceptable but for the secession flag stamped upon it. Dr. Clarke wrote that he had sent the programme to the members of the Committee, and closed by saying "We are having warm times here, and now learn that a force of 20,000 Federals are off the harbor. They are fools if they attempt to land at Fort Pulaski, as we are prepared to give them a warm reception." Dr. Wetherbee stated that he took the secession flag and with his revolver put five balls through it. He then returned it, saying, "*This is the way we intend to treat traitors.*"

The Convention proceeded to the election of officers for the current year. Nominations were made by ballot, and every member placed his vote in the box when his name was called. Dr. J. Allen was elected President of the Convention. To facilitate the voting, it was agreed to that the members' names be called, and they occupy the side of the hall on the left of the President.

On motion, adjourned till 3 o'clock P. M.

### AFTERNOON SESSION.

Came to order agreeably to adjournment at 3 o'clock.

The Convention resumed the election of officers, balloting for Vice President. It resulted in the election of Dr. J. D. White (Philadelphia). Dr. F. Searle (Springfield) was then elected Recording Secretary, and Dr. B. T. Whitney (Buffalo) Corresponding Secretary, and Dr. J. T. Metcalf (New Haven) Treasurer.

The next business being the usual address from the retiring President, Dr. Buckingham remarked, that while it was eminently proper that such an address should be required and should be given, he nevertheless would ask to be excused from its performance. The great uncertainty whether the meeting would be held this year, owing to outside influences, had hardly left him time to prepare an address such as he would want to deliver, since it was decided. Besides this, who could collect his thoughts to prepare a speech when stirring news was pouring in upon him, and his mind was continually under the stimulus of excitement? But he was glad that those who were in favor of holding the meeting had persevered. The longer he continued with the Convention, the more assured was he of its ultimate success. It is not yet above criticism, nor even as perfect as we ourselves could wish. The old Ameri-

can Association was a failure, because all the work was thrown on a few, who had the whole control of affairs. There is a necessity for an Institution like ours, open to all, and though some rules for government may be requisite, let all be as free as the circumstances will permit. He then appointed Drs. Rogers and Wetherbee a committee to conduct the President elect to the chair. Dr. Rogers said: Republics are said to be ungrateful, but Dental Conventions are not so; for they have selected the first man in the country, in mechanical dentistry, to preside over them. Gentlemen, I introduce to you Dr. J. Allen of New York.

Upon taking the chair, Dr. Allen thanked the Convention for their kindness for placing him in that position, wishing the lot had fallen to one more capable. Whatever he was, or was able to do, he placed at their disposal. Through all the changes he had passed, he had never seen a time like the present. Yet he must congratulate the Convention upon their appearance, even though they were deprived of the presence of their southern brethren. "With your assistance I will do my best, and trust you to pardon defects."

The other officers elect came forward and took their seats.

On motion of Dr. Wetherbee it was voted that a reporter be employed to report the discussions, and furnish them to the papers of the city. The object being to place the matters more before the public, and to make them better acquainted with the views and plans of the organization. He thought the public should awake to the importance of this subject of Dentistry.

On motion of Dr. Hurd, it was voted that the Executive Committee make a report of the order of business and subjects for discussion previous to the final adjournment.

On motion of Dr. Wetherbee, it was voted that Dr. W. Hooker of the Medical College, and other medical gentlemen of this city, be invited to seats upon this floor.

Drs. W. H. Atkinson of Cleveland, Ohio, G. T. Barker of Philadelphia, W. B. Roberts of New York, I. J. Wetherbee of Boston, and Samuel Mallett of New Haven, were appointed by the President as the Executive Committee.

Dr. Barker moved that the several dental journals be furnished with a copy of the Report of the Executive Committee, with the request that they will give said report an insertion in each number during the ensuing year—seconded and carried.

Dr. Wetherbee moved the appointment of a committee of three to revise the Constitution. After an amendment by Dr. Buckingham that the committee report before the final adjournment, the motion was carried.

The President called for essays or remarks upon the first subject for

discussion, Etiquette, considered—1st, in "Fraternal relations and courtesies among Dentists and with Physicians," and 2d, in "Intercourse with patients and the public, relating to neighboring practitioners and their operations."

Dr. WHITNEY (Buffalo) said, all subjects that should be understood by the dentist, yielded in importance to this. Other subjects, relating to his processes and materials he may find described in books, but this subject is to be learned from personal experience. More than twenty years ago he entered the Dental profession, and then every man was suspicious of his neighbor, and had his mantle of secrecy, wrapping all the information he obtained up in his own bosom. Courtesy requires us to tell all we can to benefit the profession, for in so doing only can we elevate it. By a narrow and exclusive course we are exposed to the contempt of the public as quacks. We owe the mother profession much, and should cordially fraternize with them.

Dr. ATKINSON (Cleveland) said, he considered the whole subject of Etiquette as a personal matter. Every man of any experience knows how sore a point etiquette has always been to him. The honest man—for all are such at the outset—inquires earnestly, "What is etiquette?" Can he see it in his superiors? Do we, even, who are older, know what it is? Does not every individual place his own interpretation upon it, varying from it according to the circumstances in which he is placed? The Golden Rule he considered the only safe one to go by in all cases. The man of science too often shuts himself up, preserving all he has obtained, treasured up in his little heart, and resolves that it shall die with him. We must acknowledge that everything we have comes freely from the Father of all, and not for our individual benefit alone. These about me are my brothers; they may perhaps be dirty, and want washing; but are our hands clean enough to do it? Till we recognize this fraternal feeling, etiquette is useless. We must bring these truths close home to each one of our hearts, and ask ourselves, "Should I like to have this my brother do to me what I contemplate doing to him?" He wanted the Convention to understand that it was no light matter to make an agency to affect an immortal man with. Earnestness is essential to any good result. Be earnest and honest, and you are certain of success. Any old hardened sinner is susceptible to the *persistent* kindliness of Innocence.

On motion of Dr. Mallett (New Haven) Dr. W. Hooker was invited to address the Convention upon any subject he thought proper.

Dr. HOOKER said: It gives me great pleasure to meet these gentlemen here this afternoon, not so much because of the connection of our professions, but on account of the very pleasant intercourse had with some of them. This very afternoon I have been in conjunction with Dr. Mallett, administering ether for some dental operations; and were it

pertinent to the subject, I could give you some results of my own experience relative to the use of ether. But I will proceed to *etherize* the subject in hand, before passing to the next. I hope I shall not carry the subject so far though, as to put my audience to sleep, believing, as I do, that it is never necessary to lose consciousness entirely. There is a period where sensation is lost without a loss of consciousness, as I have proved when experimenting with Dr. Mallet upon myself. There are three stages in the effects of ether. The first is simply a blunting of sensation; the second is a slight derangement; and the third complete insensibility. The first is the proper one to produce previous to an operation. To return to the subject of etiquette, I do not think the Golden Rule is capable of doing all that is required in the case, for a man may carry this rule out fully, and yet trespass upon the rules of etiquette—may even transgress the rules of courtesy and the sister-profession. Suppose in a neuralgia case the physician is called and gives his opinion that the teeth are not the cause of it; if the dentist be called upon and he says the teeth are the cause, without any inquiries whether any previous opinion had been expressed, he does wrong. He should always advise with a physician when the latter has been consulted, and the physician should none the less fraternize with the dentist. So will the rights of both be maintained, and their intercourse will be more pleasant than it too often is. Mere thoughtlessness often leads to a want of courtesy. There are men in all professions who know too much. I went once to a dentist to have a tooth extracted, and he flooded me with knowledge, saying all sorts of strange things, and among others that he could tell what the effect of ether upon any person would be in every case, before he made the experiment. Let us know all we can, but admit that others can know something as well as we.

Dr. WETHERBEE endorsed Dr. Hooker's views upon the desirableness of a more full and free intercourse between the professions. They ought not to be jealous of each other. The professional man, if he is a gentleman, will study the rights of each individual, and will thus discover a relationship alike grand and firmly cementing. He had longed for a time when the dental would be more fully acknowledged as a sisterhood of the medical profession—he believed a twin-sister. They have claims on us which we can not dispense with, and we have the same upon them. Let us admit these claims, and thereby spread further and wider our usefulness—let us make it apparent to the community that we are masters of our profession. Then starting from this point, when we meet a brother dentist who perhaps has not enjoyed all the advantages which we have, let us not treat him coldly and say to him, "Stand thou there; my knowledge is greater than thine." No! every man who has knowledge should be ever ready to communicate it wherever and

whenever it is wanted. This had been Dr. Wetherbee's theory, and he hoped his practice also. Any improvement he knew he was willing to suggest. He knew he could not do all the work in the country himself, and he was willing his brother should live. By giving him information he would make him a better man in the community, and more worthy of confidence. Dentists can so aid each other immensely. What he had now said had reference to honest men and not to quacks. He was in favor of guarding the profession jealously against all quackery by all the means in their power. He thought they were bound to give all the knowledge they could. They ought not to doubt the ability of those who know less when called to consult with them. They were bound to help every man, and to do for him all that could be done. They should regard it a duty to aid, advise and consult with the physician, and one to be faithfully discharged. When bad work presents, dentists should prove silence to be the better part of valor. In many cases the work is the best possible, and the operator himself may not be able to do better. In that case his condemnation will fall on his own head. If he is successful the patient appreciates and rewards him for it. Still it is hard to be silent when good teeth are ruined by bad fillings. But say only that these are bad, do not condemn the operator. There are men in Boston who have spoiled many teeth by using bad material for filling. These men should use nothing of which there can be the least doubt. In closing he advocated cultivating friendly relations with the medical profession. They know more than we do of the materia medica, as well as of kindred subjects. He had found them always ready to communicate information as every true man should. Many physicians pay less attention to teeth than they should. A case of neuralgia was brought to him which was very stubborn to the physician's treatment. The teeth were removed, and the patient was well in a few days. An old lady suffered from neuralgia for five years, rather than have the offending teeth removed; then they were extracted, and the pain ceased. A woman came to him with neuralgia, had not slept on a pillow for seven years. Seven under teeth were extracted, and she was cured. He thought the better the dentist makes the acquaintance of the medical profession, the surer his success. They should recognize dentists' claims to an equally high and worthy position.

Adjourned to Wednesday morning at 9 o'clock.

### SECOND DAY—WEDNESDAY MORNING SESSION.

After a half hour spent in the examination of models, etc., the Convention was called to order at half-past nine by the President, Dr. J. Allen.

The Secretary read the minutes of the last session. On motion they were approved.

The following letter from the London College of Dentists was read and approved :—

College of Dentists, England, 5 Cavendish Square,
London, July 9, 1861.

To Prof. T. L. Buckingham :—

*Dear Sir* :—The subject of the proposed "World's Dental Convention," has been brought under the notice of the Council of this College, and we are requested to communicate to you, as President of the American Dental Convention for the current year, that in the event of the General Convention being held in London during the Great International Exhibition of 1862, the College of Dentists will deem it an honor to welcome their professional brethren from America, whose enlightened labors have tended so much to secure for the profession of Dental Surgery a distinguished scientific position in their own country, and have proved a noble example to the Dentists of other countries.

The Council had hoped that the College of Dentists might be made available for the great meetings of the Convention, but inasmuch as the Profession in England is so divided, it appears desirable that *neutral ground* should be chosen for this purpose, thus both sections of English Dentists might unite to welcome their brethren from distant lands.

We have the honor to remain, dear sir, with much respect, your faithful servants, (*Signed,*) George Waite, M. R. C. S. Pres't.

Samuel Lee Rymer,
Anthony Hockley, } Hon. Secretaries.

On motion of Dr. Franklin, it was accepted and ordered to be incorporated in the minutes of the meeting.

On motion of Dr. Buckingham a committee was appointed—consisting of Drs. Buckingham, Wetherbee and McElroy—to take into consideration the letter, advise any action they may think expedient, and report at to-morrow's session.

The discussion on Professional Etiquette was resumed.

Dr. Hurd of Williamsburgh, N. Y., thought that yesterday's remarks on the subject of etiquette were pertinent and to the point, and had doubtless benefited all who heard them. But the subject extends so far that we have yet but crossed the threshold. It reaches beyond the simple profession alone, and even requires them to come down from their lofty eminence, whether assumed or real, to consult with their superiors. Who of us has not been inferior and imperfect? Any man, therefore, however imperfect he may be, if he is honest in seeking knowledge, is entitled to the respect of every member of the profession. Etiquette goes farther, even into the operating room, and rebukes the nod and the wink, which many a man has suffered from. It goes beyond this, and

requires silence upon the failings or faults of others. It prevents public criticism upon his reading, writing, or even spelling. "I had rather bless my own soul by a good act toward an enemy than to curse his soul by an ill-timed remark." Until men can control themselves, the venom will hiss out wherever it can.

Dr. Searle wished to make a single suggestion relating to intercourse with physicians. Not a great while since, medical men considered dentists as mere mechanical operators, and did not accord to them the confidence and respect they should have done. A new class of men is coming upon the stage, and he would suggest that dentists could exert upon the younger members of the medical profession a deep influence for good. He had given advice to some of these as he would to a son. They received it kindly. Let dentists but assert their rights hold their heads up, and not take an inferior place; it will not only be very beneficial to themselves, but also in a measure to their patients.

Dr. Allen said he had grouped together before he saw the programme, a few thoughts upon the "Causes retarding Dental Progress;" and if Dr. White would take the chair, he would read it. He said from the first, the march of Dentistry had been onward. The present thinks —as the past thought—that here is the ultimatum, but the future historian will look back upon this time as but a link between the past and the future, and the facilities for dental education through various agencies point to a still brighter future. Still, with all these advantages much is yet to be accomplished. Hence a few thoughts on the causes retarding progress. Many men are afraid to advance upon unexplored ground. They do not like to venture beyond their predecessors, though whatever they do is faithfully done, and many such have left honorable memorials. But could they advance, they would add to the stock of dental science. They decline, however, and rest upon the laurels won by others. Another cause of retardation is the fact that some venture on a little way and then turn back, concluding that had their subject been of so much importance, others would have long ago effected it. But suppose Harvey or Columbus had at the commencement of their career said so, what vast results would have been lost to the world. Had Fulton listened to the advice of friends, he never would have given to the world the steamboat. What he saw within the compass of the brain, we see now in the steam cars, mills, and factories, of such size as to fill the mind with wonder and surprise. All these things first existed in thought in the hidden chambers of the brain before they were embodied externally. Others say the profession is not remunerative enough. This begets apathy, and apathy destroys efficiency. This for two reasons:—the first, because it retards and hinders progress; the second, because our best services are demanded by the community. It is better to avoid low competitors, and to put down empiricism by

rising above it. It is better to bring it up than to lower the profession. The public are keen enough to discriminate between the honest man and the quack. The true man calls to his aid the sciences of anatomy, physiology, and pathology, and collaterally those of chemistry, mineralogy, and metallurgy, to clear up his path and dispel the darkness which the empiric leaves in his train. The public are discriminating, and will bestow their patronage accordingly. There is another class of good practitioners who do not aid us because they see the difficulties ahead, though the result may be sure, before attaining, and are unwilling to work for it without pay. Every one should feel that he can do something to advance the cause. Men's acts live after them. May we leave some good results from the part we have taken in this great drama of life.

Dr. JARVIS of New York said, that the subject of etiquette was of fundamental importance to both the professions as to the public. Cannot some rule be laid down by which we might govern our intercourse? The Golden Rule is excellent indeed, but even it will not do in all cases. Perhaps it will be considered preposterous in him to think of superceding it, but he could illustrate the subject. A lady called on him with an upper bicuspid (with an antagonist) painful. He considered it an inflammation of the membrane. A physician had thrown the blame on the dentist, saying the filling caused the trouble. Here the Golden Rule did not apply. He must state the facts of the case. If a man makes an error, it is his own fault, and he alone is responsible. He would suggest another rule, in two parts. First, kindness, from the practice of which we should never depart; and second, justice, though the heavens fall. He told the lady in this case that the physician labored under a mistake which he explained. Justice required that he should throw the blame off the innocent, and place it where it belongs. If a patient come to him and says his teeth were filled so long ago, and the dentist says the fillings are no longer there, justice requires him to tell the patient the fault is his own. He must never throw the blame on the dentist until his instructions have been followed and the teeth are taken proper care of. Never convey the impression that the fault is with the dentist when it belongs to the patient. Only the previous evening he was conversing with a lady who threw some blame on a dentist of New Haven. He showed her in a few moments that the fault was hers. Kindness should be ever practised, but have justice, though the heavens fall.

Dr. STOCKTON of Trenton N. J., asked, as one of the youngest members present, leave to say a word. He had always found the older members of the profession ready and willing to give him all the information he wished for. He saw some members present toward whom he felt as to a father, so many kindnesses had he received from them.

He would say to them in the words of Holy Writ, "They who sow plenteously shall reap also plenteously." Many of the men they have enlightened shall rise up and call them blessed.

The Convention passed to the section on Surgical Dentistry, taking up for discussion the first subject, "Ulceration of the deciduous teeth; its effects upon the growth or health of the permanent ones."

Dr. Searle, on behalf of the Committee, said it was suggested to omit the first two words, but it was decided it would be better to confine the discussion to ulceration, and not extend it to irregularities of the mouth with no ulceration.

Dr. J. D. White, upon request, said it would, perhaps, be better at the outset to understand whether the ulceration was that of the crown or the root of the tooth. If there is a positive and a negative in regard to this treatment, each will bear two sides for discussion. He thought that the ulceration of the roots of deciduous teeth was not always regarded as injurious to the development of the permanent set. By an early loss of pulp by extraction, great damage would result. If the ulceration is extensive and depletes the parts, it is not injurious to extract the tooth. The presence of a deciduous tooth is of advantage to the permanent teeth, as the flow of blood is preserved by its presence. He never removed a tooth except upon the direst necessity. People in America are too desirous of getting rid of their first teeth. Every tooth removed from the alveolar process diminishes the flow of blood in the part. The neighboring teeth are not affected unless the general health is, any more than removing one finger injures the others. He had been censured for not removing deciduous teeth, but as the darkest day at last passes, so teeth that seemed to be spoiled would finally come out well. It used to be thought necessary to remove these first teeth out of the way as soon as possible. Immense damage has been so done. The young man is apt to act from present indications, whereas he has no business to act where he cannot calculate the results. He had even cut off the roots of ulcerated deciduous teeth, leaving the crown. He had done so with children where the roots projected through the gum. The gum closes over the fang generally, but if it does not, it occasions no difficulty. If the root is healthy, it will be absorbed, but not if it is at all necrosed. He thought it better than to extract the tooth.

Dr. Atkinson, Cleveland, O., said, when men endeavored to come to their children with an idea, they try to see if the little minds can take in the conception they wish. All had been said that need be said upon this subject to the cultivated mind by Dr. White. He had done it beautifully, both analytically and synthetically. He was glad Dr. White's practice had been so positive, and had rather have it to any negative action whatever. The dear children were mutilated every day

in our futile efforts to do them good, and in our attempts to rush in where "an angel would hardly dare to tread." Dr. White had told us so, but we need line upon line, and so he would repeat it. If our minds were open to molecular action, we could understand what he calls absorption. He knew that they extracted too many children's teeth. Let no dentist do that for others' children he would not do for his own. If the deciduous teeth are taken care of, the dentist will not have much to do. If the disintegration commences and goes on, a catalytic action sets up. All nucleated structures have an outward corporeal existence. What is commonly supposed to be ulceration, is only an effort of nature to get rid of unnecessary matter, broken down tissue, etc.

Dr. Butler, Cleveland, wished to say a few words about the amputation of fangs. One of the great causes of the disturbance of these little organs is from the death of the pulp. Ulceration comes from some such disturbance, beginning at the fang and enlarging till the fang comes through the gum. Once it was thought that these should be removed as soon as they come so, but he thought it bad practice. There will be a contraction, but it will not cause irregularity. If the jaw contracts too much, the permanent teeth have nothing to expand against. Cut off the fang, and if the neck of the tooth is tolerated it will keep the jaw from contraction. He had amputated the palatine fang of adult teeth, where if left, the crown and buckle fangs would have required removal, whereas now, all are sound. Let us remove as little as possible, and only those that are offending; so can we save the healthy members alive. Because they give a child trouble, is no reason for their removal. Let us be careful that we do good in our practice rather than harm.

Dr. Wetherbee, Boston, spoke of the effect upon parents of ulcerated first teeth in their children. Frequently parents are found bringing a child who has a tooth which troubles them very much, and wish it extracted. Upon examination, some irritation is found, but not yet ulceration. Laudanum or some other soothing remedy is advised for the retention of the tooth. In a few days they come again, saying, "The tooth is so troublesome we are kept awake by it, and it must come out." They must be told, that to extract is malpractice, and that a respectable man will not do it. The dentist may scarify the gum, and do many other things, but he should not extract the tooth. Even if the child should be relieved for the present, it is no compensation for the evils of the future, and the parent will come back upon the operator and accuse him of the result because he could look to the sequel. The highest type of the dentist is integrity, giving no one any cause to lay a charge of deception at your door. Take time and instruct the parent. You will then have his aid for the future. A parent brought a beautiful little girl to him to have some of her first teeth removed. He

would not do it, and she probably went elsewhere and had it done. Money is no equivalent for malpractice, and if the aim is only to make money, the sooner he drops his instruments the better for the world.

Dr. White said he made it a point always to instruct the parent how to treat deciduous teeth. When the pulp is dead, he opened and probed the cavities. He gave even a probe, to take home with them, and clear the food out with. He then added some cotton with a little laudanum or creosote.

Dr. Franklin, New York, spoke of the magnitude of the effects of ulceration. No member there could be competent to fathom their extent. They cannot trace even the results of a kind work, which lasts to the end of time. The consequences of transgression are, therefore fearful to contemplate. Ulceration seems a yielding to the devil of the vital forces, the recuperative energies, and when the dentist has removed the cause of ulceration, he has aided nature and effected a result of which no mind can trace the effects. Uncorrected they were frightful to contemplate.

Dr. Wetherbee remarked, that where the breath was fetid, and a large amount of pus was present, he used a syringe and washed the cavity out every day. He thought it better to do this than remove it, He had plugged deciduous teeth with success even when the gums were sore, by treating them after cleaning with paregoric or creosote, and then filling with some soft plastic material after the gum has become healthy.

Dr. Priest (Utica, N. Y.) expressed the opinion that they did not commence soon enough to arrest the inflammation of deciduous teeth. He had done it with entire success. Parents could afford $5 or $10 for the greater comfort of the child in retaining their own teeth. Every dentist should attempt this.

Dr. Woolworth (New Haven) wished for an expression of experience as to how much could be done in preventing decay by filling. The loss too soon of deciduous teeth is one of the principal causes of the strange forms in faces. Yankees like to look pretty well. How have dentists succeeded in telling people to spend their money to save the deciduous teeth?

Dr. Buckingham said ulceration was not a disease, but only the effect of a disease. It was an effort of nature to get rid of superfluous matter. Inflammation is the cause of ulceration. In such cases it is difficult to tell how and when an operation should be performed. In a healthy child it is generally an easy matter, but if the health is poor, how much is the case complicated. His impression was that the alveolar process contracted, though Mr. Tomes says not. Another question was, Is the inflammation essential to the nutrition? The artery of nutrition comes into the tooth very low down, and the ulceration does

not go deep enough to interfere with it. A great responsibility rests upon the dentist to decide these questions, and he must be honest and never act from pecuniary motives alone.

Dr. WHITNEY (Buffalo) considered the deciduous molars were the most liable to ulcerate. The upper bicuspids were the first lost, and are the weakest teeth in the adult. A tooth cannot be healthy which passes through a diseased mass. The question is rather how much the deciduous molars injure the growth of the bicuspids. They sometimes come good under all treatments. Is there not some way to obviate the evil effects and save the bicuspids?

Dr. ATKINSON was surprised to see so much ignorance in the Convention upon the subject of ulceration. An alveolar abscess is not possible without a periosteum to be inflamed. A gum boil may be there but no ulceration. He referred to the article of his upon "Alveolar Abscess," in the *Dental Cosmos* for August. He would extract a deciduous tooth only when it has no connection with any living tissue, and entirely dead. When the alveolar abscess of the deciduous teeth affects the permanent in the pulp, their remaining is injurious.

Dr. WHITE thanked Dr. A. for his remark that individual cases explain nothing; general principles only are of value. No single case is suited to come under the knowledge of a large body of men. A professional man could neither decide when to amputate a limb or even to extract a tooth till he saw the patient. He could not say when he would remove a deciduous tooth from fear of injury to the second teeth, unless he could see the case. The decision is made from many minor circumstances which cannot be put upon paper. He always extracted deciduous teeth when he believed the general health would be injured. For the forces of nutrition are so nicely balanced, that losing one molecule may turn the scale against the child. Men have no business to act in the dark here. They should act only when they have followed cases and seen the results; in short, when they have experience. No man should conclude he has hit the bull's eye because his aim was well taken. The target must be examined. Young practitioners should make notes of every thing. There is no such thing as perfection in the work of human fingers. He would try every way to build up the system, and to cure by medicine if possible. But he did not think the question could be answered definitely.

Dr. ROBERTS (N. Y. City) inquired of Dr. White what proportion of deciduous teeth he extracted rather from the fear that the permanent teeth would be injured than from other and general causes.

Dr. WHITE replied, that he removed deciduous teeth very seldom from the fear of their influence upon the second teeth, but rather from systemic than other reasons. A tooth laid bare prematurely by the removal of the deciduous tooth has never its enamel good, and it is

liable to destruction from the fluids of the mouth. He was accustomed to tell his patients they had uncovered their potatoes too soon; before they were ripe. The gum shrinks down from around the tooth and exposes it.

Dr. Palmer (Fitchburg, Mass.) was in hopes the discussion would have taken a rather more practical turn. His observation proved teeth should never be extracted from fear of injury to the permanent teeth, but that these latter were very frequently injured by the removal of the first set.

Dr. Searle said he never saw a case where the second teeth were affected by ulceration of the first.

Drs. Wetherbee, Whitney, and Rogers were appointed a Committee on the Constitution.

Communications were received from Dr. Charles Hooker, inviting the Convention to visit the Medical College; also, from Mr. Herrick, extending an invitation to the members to visit the College buildings.

On motion, it was voted to return the thanks of the Convention to these gentlemen, and that the Secretary be instructed to communicate the vote.

Adjourned at 12½ o'clock, to meet at 3 P. M.

SECOND DAY, WEDNESDAY—AFTERNOON SESSION.

The Convention came to order, at the call of the President, at three o'clock.

The second subject in Surgical Dentistry—"Inflammatory diseases of the gums and periosteum, producing absorption of the sockets, and loosening of the teeth; causes and treatment"—was passed over, and the third—"Bleaching Teeth when discolored from loss of vitality: means for preventing their discoloration and ulceration"— was thrown open for discussion.

Dr. J. D. White said, he wished to say a few words upon this subject, perhaps for a target for others to fire at. Loss of vitality does not discolor teeth. Dead teeth are discolored afterward. A tooth cannot properly die, except the pulp dies in the crown. The discoloration of a tooth after its death, he thought, was not due to the infiltration of blood. The red color did not come from this cause, and was not due to hematin from disintegrated blood corpuscles. He thought we should not call a thing by a name unless we were sure it was right. In regard to the means for preventing coloration he could give none in particular, except to keep it from any farther injury while treating it. Teeth may be discolored by a blow. He had seen teeth quite red when the pulp was still living; why, he could not tell. Why a body is red is not known, but color serves for classifying and arranging

things. Color should be removed from teeth as soon as possible without injuring the dentine. The pulp discolors the tooth itself, if it be inflamed, even though the vitality is not lost. Pulp may be kept out of the tooth for ages and not lose its natural color. Isolated cases can prove nothing. The bleaching process by Labarraque's solution is highly deleterious to the teeth. A tooth immersed for twenty-four hours becomes chalky, and though whitened, its texture is destroyed. It becomes rapidly discolored afterward.

Dr. Barker (Phila.) regretted that he could not agree with Dr. White, that the red color was not due to disintegrated blood corpuscles, simply because out of the mouth it is not discolored. In the mouth there are the processes of endosmose and exosmose going on, the fluids passing in and out of the tubuli, and so the processes of disintegration are carried on. He had had some experience in bleaching, and thought the first thing to be done was to bring the parts into a healthy condition. He tried the experiment on one of his own teeth, the pulp of which was dead. It was opened and treated with creosote and then filled throughout. It always felt like a foreign body, and after four years of use the gold was removed, and he bleached the tooth. He could not speak of individual cases, but gave his method. He treated it with a small quantity of chloride of lime and prepared chalk, depending upon the strength, four parts of prepared chalk were mixed with one part of chloride of lime and a small quantity was introduced into the tooth twice a day. The natural color of a tooth can never be perfectly restored, but his tooth would not be detected by any one not a dentist. Labarraque's solution he agreed with Dr. White in discarding as not suitable.

Dr. White stated that a tooth discolored by organic matter might be bleached by exposure to the sun, while, if the color was due to inorganic matter, it is permanent. He thought the color due to the morbid fluids of the mouth.

Dr. Atkinson said this subject required a vast deal of knowledge of the laws of chemical equivalency. The true laws of color are not known. It is a matter of interest to the dentist, because the patients who pay best, in kindness and dollars, are those who have some taste and who want their mouths to look well. Color is not an entity, but is an arrested fractional part of light. Many chemical salts,—Prussian blue, for example,—possessed color. He would bleach a tooth by first removing all the decayed mass, hard or soft. Chlorine is the great bleaching agent in chemistry, and to use it here it must be so combined as to produce its least deleterious effects. He used it in the form of *undeliquesced* chloride of zinc, which he crowded into the cavity of the tooth.

Dr. Barker asked Dr. Atkinson if chloride of zinc was not properly a bleaching agent, or had any proper bleaching properties.

Dr. Atkinson replied, that that was just the way he was always misunderstood. He appealed to the Convention if he did not state expressly that chlorine was the bleaching agent. And the *undeliquesced* chloride of zinc, when introduced so into the tooth, absorbed water from the mouth and passed to a liquid condition, and in so doing the chlorine was liberated and effected the bleaching.

On motion of Dr. Wetherbee, Prof. G. F. Barker, Wheaton, Illinois, was invited to give his views on the chemistry of bleaching.

Prof. Barker remarked that he felt it to be but just to science to correct views so erroneous as those just stated. While it is true that chlorine is regarded as the great bleacher, it is not yet decided whether this action is due to the chlorine itself, since this substance will not bleach except in the presence of moisture, an experiment easily tried. In case water is present, the chlorine, under the influence of light, unites with its hydrogen, and setting the oxygen free, this agent in its nascent state—perhaps as ozone—effects the bleaching. Moreover, the active agent in both the chlorides (more properly, hypochlorites) of lime and soda,—the last Labarraque's solution,—is not properly chlorine, as such, but hypochlorous acid, which acid is set free from its combinations by any other acid, even the carbonic of the atmosphere. In the chloride of zinc—a *binary* compound having stronger affinities than the others, which are *ternary*—no such action can take place. Prof. Barker contended that no decomposition of the salt could take place by simple deliqueseence, a mere passing from the solid to the liquid state, and the statement was contrary to all experience. The chlorine could not be set free except by the refinements of chemistry. "This is not my opinion," he concluded, "but the fact. I have no *opinion* on the subject."

Dr. Butler, Cleveland, asked to what he should attribute the influence of chloride of zinc in bleaching? as he had experienced its beneficial effects in whitening teeth, using it as did Dr. Atkinson.

Prof. Barker answered that if the fact was well established, he should be inclined to ascribe it rather to the influence of the salt, as a whole, upon the coloring matter to destroy it, than to either of its constituents. His impression was, that it acted physically in presenting a white ground in the tooth. Perhaps, also, it softened and removed in some measure the dentine holding the color.

Dr. Hayes, Buffalo, had, after trying various things as bleachers, re turned to the old plan,—opening the tooth freely, and, after scraping it thoroughly, the most of the coloring matter was removed. He then filled it with gold.

Dr. Wetherbee had for ten years entirely laid aside the use of all bleaching agents. His method was to remove, in the first place, all decayed matter and scrape the inside of the fang. Then he filled the

nerve cavity and the whole of the tooth solid. Only the week previous he had so treated a tooth that had been dead for years. Before the operation it could be told across the room, but afterward it could scarcely be detected. The tubuli commenced to ossify from the interior. In ninety-six cases out of a hundred teeth will come back to their natural color, after filling carefully. He had filled teeth ten years ago, which were of a better color to-day than then. He considered bleaching an unnecessary trouble. He thought it necessary to remove the cementum before filling.

A discussion ensued between Drs. Atkinson and Wetherbee, as to the structure of the tooth, and the existence and locality of dentine and cementum.

Dr. Atkinson made an excellent demonstration, with the aid of the black board, explaining the layers and their position with great clearness. He relied upon his own observation of sections under the microscope.

Dr. Wetherbee cited Fox and Hunter to prove his position, that cementum existed in the interior. It acted there as a nerve cushion.

The discussion seemed to arise from the want of definiteness in the idea of cementum, Dr. Wetherbee calling it thus when in the interior of the tooth, and Dr. Atkinson calling it secondary dentine. Dr. A. said cementum existed only upon the outside of the fang, and differed materially from secondary dentine in its microscopical character. He also affirmed that the tubuli commenced to ossify at the exterior.

Dr. White stated that, when microscopist to the old American Society, he made many diagrams from actual specimens. These he referred to in a paper on Tooth edge, and made sections of early teeth before they protruded to demonstrate his views. The incisor teeth are in structure like a clam, having two thin plates of enamel, lined with dentine, having a membrane on the interior surface enclosing a large cavity filled with pulp. The root of the front tooth holds together the crown. The secondary dentine should be always cut away before feeling. He had examined teeth filled by the very best operators, and found in them a large quantity of decayed material. There is a crack along the cutting edge of every tooth, which he proved not to be accidental by the same fact in the early tooth. This he considered a valuable point to the profession, and to be remembered. Such facts should be eliminated, and he would leave it to conventions to do it. There were hundreds of able young men in idleness for the want of a spark of life. A little effort in these would carry them far beyond what has been done in this department.

Dr. Wetherbee still insisted that there was internal cementum, according to his authorities. Its use was to afford room for the pulp to expand, and was placed there with benevolent designs by the Creator.

Dr. Barker considered cementum an improper name for secondary dentine, their structure being different. Enamel contained less organic matter than dentine, and this less than cementum. The last approaches the structure of bone, generally having haversian canals, and the branches, canaliculi, with lacunæ, as is manifest under the microscope. To these lacunæ the blood is carried, and there the nutrition takes place which is extra vascular. But cementum is not bone, for sometimes these canals are absent. Secondary dentine is distinct from it.

Dr. White stated, that the best practice was to open and clean out the tooth thoroughly, and let it remain open a short time to the air and light, keeping it exceedingly dry, as then it lightens more rapidly. This is better treatment than bleaching.

Dr. Palmer, in his practice, had abandoned bleaching agents. He cleaned out the soft dark matter, and, if very much discolored, he took everything out he could of the removable matter. He then put in some perfectly white flax or lint, and filled it solid with gold. The action of both thus makes as good a color as is necessary.

The Committee on Constitution made a report through the chairman, Dr. Wetherbee. It was accepted, and the Committee thanked for their promptness.

The Executive Committee reported through W. H. Atkinson, chairman, the programme, which was recommitted.

Adjourned at 5½ o'clock, to Thursday, at 9 A. M.

### THIRD DAY.—THURSDAY MORNING.

The Convention assembled and considered various inventions for dental purposes, for an hour.

At 10 o'clock the President called the Convention to order.

The minutes of the last meeting were read and approved. The new Constitution was adopted, and the old one nullified.

The committee to whom was referred the letter from the London College of Dentistry, reported through Dr. McIlroy.

Objection being made that the recognition of the disturbed state of the country appeared to interfere too largely in controlling the action of the Convention in appointing delegates, the report was referred back to the committee, on motion of Dr. Barker.

Drs. Hayes, Rogers and Franklin were added to the committee.

On motion of Dr. Roberts, the place of the next meeting was next taken up for discussion. After much time consumed in deliberation, Trenton Falls, N. Y., was determined upon; the Convention to assemble there on the first Tuesday in August, 1862.

The Executive Committee reported back the order of business for the next meeting, as follows: 1st, Admission of Members. 2d,

Reading Minutes of the last Convention. 3d, Report of Officers and Committees. 4th, Election of Officers. 5th, Retiring President's Address. 6th, Induction of Officers.

All essays shall be read to open the discussion on the subjects to which they relate.

No member shall speak more than ten minutes, nor more than twice on the same subject without permission.

I. *Miscellaneous Subjects.*—1. Anæsthetics. Their use and relative value. 2. Alveolar abscess. 3. The causes influencing an abnormal development of the teeth.

II. *Operative Dentistry.*—1. Filling Teeth. Simple and complicated cavities. 2. The Dental pulp. Its varied treatment. 3. The extraction of teeth.

III. *Mechanical Dentistry.*—1. Artificial Dentures. Temporary and Permanent.

IV. *Unfinished Business.*

N. B. The Executive Committee suggest that half an hour every morning be devoted to the presentation of models, improvements and inventions, and the disposal of business not embodied in the regular order.

On motion of Dr. Buckingham, it was voted to invite Dr. Atkinson to read his papers.

Dr. A. stated the subject of the first to be "What lack I yet." "This," he said, "is the query of him who thinks himself perfect, or nearly so; and it were well if every man would repeat it to himself every day." The financial, he thought, entered too much into their profession. Men, too, often said they only worked for money. But the proper object should be the amount of good they do rather than the amount of work they perform. The highest remuneration is the satisfaction of work well done, and is a measure above pecuniary recompense. The true professional man prepares himself fully for the speciality he is to pursue, and then opens his office for its successful performance. The quack learns but a part of his profession, and then advertises largely, offering cheapness and the use of new methods as inducements for patronage. Their bold recklessness and cupidity have shown honest men what to do in this matter. There is abroad in the whole community a patent recklessness and haste; a confidence in unexampled lack of skill. There is first a lack of knowledge as to how to raise children properly; second, a want of proper physical culture; and third, a lack of confidence in ourselves, which begets a want of confidence in others. Mutilation in operation occurs ten times where our eyes are once blessed by the skill of an accomplished Christian dentist. The profession should everywhere require prompt pay, which is the great peacemaker. A lack

of breadth or ability causes an infraction of this rule, and a lack of Christian breadth keeps it alive. Next to the neglect of this rule of prompt pay, there is a great want of earnest, hearty appreciation of the profession. As where there is most fuel there the fire is the hottest, so where the air is redolent with truths and facts, principles and methods, will the truest and greatest advancement be. Circumstances must bend to us, must be made to come under our control, and if honest, we can and will do this.

The second paper was rather metaphysical upon the subject of "Life;" the opening question of which was, "Does being imply a right to live?"

On motion the Convention adjourned to 3 P. M.

### THIRD DAY.—THURSDAY.—AFTERNOON SESSION.

Came to order at the call of the President at 3 o'clock.

An invitation was received from Prof. B. Silliman, Jr., for the members of the Convention to visit the buildings and laboratory of the Sheffield Scientific School. Accepted, and the Secretary was instructed to return the thanks of the Convention.

Dr. PERINE (New York city) moved, that before the Convention adjourn a certain time be allotted to discuss the propriety of appointing Dentists in the army and navy.

The next subject in order "Filling teeth and roots; what is gained by fang filling and average of success," was taken up for discussion.

Dr. ASAY (Phila.) described his method of cleansing by creosote on cotton, and filling, which did not vary essentially from the usual one.

Dr. J. D. WHITE said, he would make a few remarks upon the question "What is gained by fang filling?" A great deal is gained in so far as metal well packed will shut out the gases and fluids which decompose and destroy the tooth. The enclosure of a space which is a receptacle of fluids penetrating into the pulp cavity, is gained. This space or cavity does sometimes contain pus, from the fact that the teeth discharge it through the openings where they are being plugged. The reason why filling the fang is of no use, simply because it is empty, is preposterous. It injures the root of the tooth not to shut out the fluids which percolate through the crown of the tooth, as well as decomposing matter. The neck of the tooth where the tubuli are largest becomes softer, and allows this permeation, and the tooth breaks. Teeth that are plugged in their roots do not break as often as those which are not. Blue lit-

mus paper will be reddened by the fluids in the nerve cavity, showing that fluids do circulate there. The nerve where a plug is driven in on it, becomes often dead, and may be stripped off when the plug is removed like an eel-skin. This cavity must be shut up to gain the preservation of the dentine around the neck of the tooth. He didn't care to plug the tooth entirely to the apex. When the tooth was old, however, he passed the gold as near the bottom as he could. If the tooth be filled solid, all possibility of treatment afterwards by the removal of the filling is shut off. He saw a tooth, filled by a dentist of ability, perhaps, of an army officer, which cost $36, which in five or six weeks had to have the entire filling taken away. Two-thirds of the depth of the fang was absorbed. There is much mischief done by the manner of early plugging. The blood can no longer circulate in the pulp cavity, but only at the apex of the tooth. This produces congestion around the root of the tooth, where occurs the alveolar abscess. Wait till anastomosis takes place; until the blood can be carried back by the blood-vessels, without making them sensitive and inflaming them. After this, plug the tooth, first the fang, then the crown tightly. To treat an abscess is only to put it in a condition to get well. Dr. Asay has said, when the gum was well, he filled the root. He, himself, preferred not to trust to appearances. The sportsman knows he is more likely to kill a bird on the wing when he makes a turn. So he preferred to treat the abscess. If it appears likely to get well itself he would let it alone. If the external parts are well it is not certain that the internal are so. It is not a good sign for the gum to heal up, where an abscess has come through, when the plug is out. When all the parts, internal as well as external, appear well, then fill the root. There must be a place for effusion to take place so long as it continues, so the root is to be filled just before the gum is closed.

Dr. Searle (Springfield) asked Dr. W., if he implied that a tooth could be worked upon so long as to inflame the periosteum. What evidence had he that filling too soon injured the teeth, from actual experience? Dr. White replied that in the case he referred to, it took three sittings of three hours each, to remove the filling, the tooth being reduced to a mere shell.

Dr. Barker (Phila.) said, in considering this subject he would make a foundation, by taking as an example a tooth where the pulp was exposed. What is the nature of the inflammation at the end of the fang? Does cicatrization or ulceration, or granulation ensue? A large amount of blood is thrown to the periosteum, and one of these must take place. He considered it erroneous practice immediately after killing the nerve, to extract it, and then fill it, though he knew it was sometimes successful. No man, he thought,

had a right to practice on one point altogether to the exclusion of others. The pulp is not a closed cavity, but circulation goes on, and if this is left open there will be permeation of the dental tubuli by the blood, and discoloration will take place. Where the fangs are left open, too, other fluids penetrate. Still, he thought the fang should be left for some time before filling. His custom was to plug with cotton, and leave it for a week. If there is inflammation, it can then be successfully treated. But if filled at once, solidly, there is great difficulty in getting at the inflammation, and frequently a loss of the tooth.

Dr. Wetherbee (Boston) considered fang filling the most important work the dentist has to perform. His work here must ever be the best evidence of his success and ability. He would take issue with the last speakers as to the propriety of leaving a tooth plugged with cotton. His results had taught him a better way. After killing the nerve by the application of nerve paste—creosote, arsenic, morphia, etc.,—he then removed the pulp and nerve, and secured a cessation of bleeding by applying a wad of cotton dipped in creosote. He then filled it directly, and could not be hired to delay it for a single day. If this is done as it should be there is not one case in a hundred were bleeding will come again. This thing can be done, and the tooth plugged to the apex. He extended a gold wire up into the cavity, and got the depth even before the bleeding stopped. Compare this with the broche, and when the cavity ceases bleeding, fill it solid. He had not had, for the last ten years, the least trouble where the nerve was thus killed, and the tooth filled. This success has taught him that his method is the right one. He had seen much other practice followed with bad results. He had frequently had persons come to him for the removal of the fillings, some of which were cured, and some continued bad for days. Dentists should consider first, their patients' pathological condition; and second, should take care that they do not take cold. A man applied to him with a bad tooth, to which he applied a poultice which did not produce suppuration. He found the condition of things not very agreeable, but washed out the cavity, filled the nerve canal with cotton wet with creosote, for a week. Then he filled the tooth, and from that time it amended rapidly. Another person came with much pain in a filled tooth; he removed the filling, let it go a week, and then refilled it. It was better filled than the other tooth, being filled to the fang. He had a case where two frontal incisors were treated with arsenic, the nerves killed and left in, and two gold fillings put in over the dead nerves. In a year the teeth became very painful, until finally they were so loose as to be easily moved by the tongue. He removed the fillings and cleansed the nerve canal. He applied

creosote in small quantity for a week. One tightened considerably, and he filled it. An abscess had formed over the fang of each tooth. At the end of the third week, he was able to fill the second tooth by sustaining it between the thumb and finger. They became well; the gum closed up, and the teeth have remained sound. Perhaps this result would not have taken place in a man forty or fifty years old, but in this case youth was on his side. Every item of experience that can afford help, should be gathered.

Dr. PERINE (New York) considered that in this subject each and every operator must adopt an eclectic practice in order to success. Any man in the profession, however able in taking a given number of cases in hand, must fail in some. He had one case of two ulcerated molars, which were pretty bad. He was able to clean one thoroughly, and fill it. He took advice upon the other, and was trying to save it by treatment with creosote. After he thought it had become healthy, he filled this one. Some weeks after, the patient called, with much pain in his tooth. He removed the filling, found the tooth in an unhealthy condition, having a discharge from one of the fangs. He again treated and filled it, and not long after was obliged to remove the filling again. The dentist does not know how many operations he loses. His patient who to-day is treated in New York, goes to-morrow to Chicago, and may be attended to by a dentist there, and never be heard of in New York. They lose more teeth than they are aware of, perhaps well filled teeth, too. He thought it was not well to leave teeth open, but to fill them full as soon as they become sound and well.

Dr. MCMANUS (Hartford) asked, if it was considered well to fill the fangs of superior posterior molar teeth.

Dr. J. D. WHITE answered, Yes, if the patient is old enough. Never fill a tooth till the fangs are perfectly formed.

Dr. ROBERTS (New York) said, that it appeared to him, that when a tooth was diseased, and the nerve was dead, it never was a healthy tooth again. It may last some time, but there is always more or less soreness; not enough, perhaps, to annoy the patient, but it never feels natural. When the nerve is destroyed, fill every tooth to the apex of the root. In many cases we fail to fill to the apex, when honestly thinking that we do it. This is more often the case in molars. The manner of doing this is various in different operators. Many things are to be taken into consideration, especially the constitution of the patient; a tooth which can be treated in one person's mouth by killing the nerve, and filling to the apex, may fail in the mouth of another. Some people never have the toothache, and their teeth rot out of their head, even, without giving them trouble. He did not believe in the wholesale saving of teeth. The

dentist may try his best, but he can not save every tooth that comes to him. It is impossible for any man to tell to what extent he is successful. Many whom he treats may go away, and he never see them again. The best operations may fail, from circumstances which are entirely beyond his control.

Dr. Tefft (Vermont) stated, that he had not been in the habit until within two years, of fang-filling. A lady came to him with two frontal incisors troubling her. He would not then touch them; two weeks after she came back with them ulcerated and discharging. He commenced using creosote on a thread between them, and, laying bare the interior, he treated it with creosote somewhat diluted. He then cleansed the root out, plugged them both, and had never heard of any unpleasant results from them. He asked Dr. White if he did not consider those having constitutional humors, were the hardest patients to treat.

Dr. White replied, that he was always governed by the temperament of the patient in the treatment of alveolar, abscess, or ulceration. Where the disposition and temperament of the patient were inflammatory, he always extracted without hesitation.

Dr. Metcalf (New Haven) said, he had a case where he filled the crown of a tooth, the root of which ulcerated, becoming much inflamed. Pus oozed out, and when extracted, a piece of the alveolus came too. He had seen other teeth where the crown was filled, and the nerve, killed by arsenic, not removed. Ought the filling to come out and the cavity be cleared?

Dr. Franklin (New York) said, there was a wide margin of opinion among those present, as to whether teeth should be filled in the fang or not, or even whether all teeth, not tender, should be immediately filled. In his opinion, if a definite line of procedure were followed, more constant results would be obtained. The fault of the failure is more often with the operator than with the method. He had a word of advice to the patients also. Go always to the best dentists within reach.

Dr. White asked, if Dr. Franklin meant to say that the failure in all cases was owing to the dentist's not understanding the circumstances of the case.

Dr. Franklin thought it was so in a majority of cases.

Dr. Atkinson said, there was great misapprehension on this subject, and in justice to this profession, which he loved, he must speak of it. The profession of dentistry is yet in its infancy, and men go further than they know about, and think they know more than they do. If we knew all, and *then* went to the extent we do, all would be right. All are right from a certain standpoint. If the fang is not inflamed, then it may be filled directly. Dr. White is right;

where we want success destroy the nerve, and clear it from the cavity; exterminate it and then fill the fang. The canal must be opened clear. If alveolar abscess sets up after filling, don't take this out if good. If bad, remove it. The abscess at the root of the fang may be opened from the outside. There is no granulation where healing takes place by first intention. The nearer we approximate the normal condition of teeth, the better. If the patient comes with an abscess through the alveolar plate, go to work directly and fill the tooth solid.

Dr. SEARLE (Springfield) said, he was rather a matter-of-fact man and living in not a small city either. Many of his patients came from the country, and he was obliged to conform to circumstances in treating them. In filling a number of teeth one may be found where the nerve is dead and absent, though it has never given any trouble. He dared not go on and fill it up, and assure the patient there would not be any trouble. In all such cases he put in a test filling as near to the apex as possible. He informed the patient of the condition of things and told him to call upon any dentist where he might be and tell him the circumstances. He never would fill a tooth unless he was able to remove the filling, in case of inflammation afterward. Too much faith often disturbs the patient.

Dr. WETHERBEE asked, if a temporary filling so loose as to be taken out was of any use.

Dr. SEARLE said, he thought it was of great use. That it was quite firmly put in, but he never would put in a filling which he could not remove. He thought the proportion of fangs filled was very small. Much discretion must be used as to when to do it. He never had taken out a tooth with filling in the fangs.

Dr. BURRAS (New York) said, that every man should have his turn, and he thought as he had so long listened to the discussions without taking part, that he was entitled to some of the time then. He proceeded to read a very scientific paper upon "Mastication and the Articulation of artificial dentures." He argued that the only way in which correct articulation could be proved was by getting the position by the process of deglutition or swallowing.

Dr. WETHERBEE illustrated his method of articulation, using Dr. Burras' head as a model. Placing the thumbs back of the mastoid processes, and the fingers front of the maxillary muscles, he caused the patient to open and close the mouth. He succeeded perfectly.

Dr. J. D. WHITE, considered composure of the patient a great requisite. He gave the patient some water to cleanse the mouth and to preserve the wax sufficiently hard. In this case the patient's jaws became naturally fixed, and were then marked.

On motion it was voted that when we adjourn, it be to-morrow at 9.

Drs. Atkinson, Perine, and Franklin were appointed a committee upon the question of appointing Dentists in the Navy and Army.

The committee on the London correspondence, reported the following letter in answer:

New Haven, Ct., August 8th, 1861.

Messrs. Waite, Rymer, and Hockley, College of Dentists, London.

Gentlemen:—The undersigned, a Committee of the American Dental Convention appointed to reply to your letter addressed to this body, beg leave respectfully to say that the fraternal and cordial spirit of your communication has afforded the Convention the most sincere pleasure, and inspired its members with renewed, and, if possible, higher regard for the professional brethren in England.

The Committee are requested to return grateful thanks for the very kind manner in which you have pleased to tender a welcome to American Dentists at the proposed General Convention in 1862, and will be happy to make such response as the circumstances of the future shall allow.

With the highest esteem, gentlemen, for yourselves personally, and for the distinguished body you represent, we have the honor to subscribe ourselves, very faithfully and gratefully yours,

(Signed) T. L. Buckingham, I. J. Wetherbee, A. McIlroy, } *Committee Am. Dental Association.*

On motion of Dr. Franklin, it was

*Resolved*, That the officers of the American Dental Convention extend a cordial invitation to the Dentists throughout the United States, to attend the World's Dental Convention, to be held in London in 1862.

On motion, adjourned to Friday, 9 A. M.

FOURTH DAY—FRIDAY MORNING SESSION.

Half an hour was devoted to the examination of inventions as usual, and at the call of the President the Convention came to order at 9 o'cloc‹

Minutes of the last meeting were read and approved.

The Committee on "Appointing Dentists in the Army and Navy,' reported that the subject appeared to them of so much importance, that they prayed for more time for its consideration.

On motion of Dr. Roberts, Drs. J. D. White and I. J. Wetherbee were added to the Committee, and they were given full discretionary powers to correspond with the Departments, etc.

The next subject on the programme :—"The various plastic materials for filling teeth; their relative or individual merits,"—was then taken up and discussed.

Dr. HILL, of Norwalk, considered this a very important matter, affecting too largely the community to be passed by. He hoped the gentlemen would speak upon it.

Dr. J. D. WHITE said, these were affairs which ought to be conducted with deliberation. He referred to an article upon oxychloride of zinc by Dr. Metcalf, in the last number of the *Cosmos*, which he had reviewed. But he proposed to discuss the *morale* rather than the merits of these substances. Those who have been through the labyrinth, as he had, were not likely to go back to the commencement at the call of any one who had discovered something new to himself. He formerly had been opposed to the oxychloride, but Dr. Metcalf had recommended it to him anew. In these days there is too much claim for new things. Those who have such articles to offer should place them before the profession with some degree of modesty, and let them help the introduction along. Dr. Metcalf sent this oxychloride to him as a compliment, in a very modest way as a substance he had experimented with. Articles had been published against it, in which some Professor of Chemistry had said that the tooth, both dentine and enamel would be destroyed by this osteoplastic. He filled a tooth with oxychloride of zinc. A month since he saw it, the bone on the buckle side was bare, the enamel gone leaving the bone as clear as horn. There was not the slighest change in the layer of dentine on the wall of the cavity where it was thin. Where the wall was thick it was difficult to determine its action. This proved to him that the tooth was not destroyed by the material. He filled a tooth last fall with plug five-eighths of an inch long; the tooth was in a horrible condition, as fast as the plugs were put in, the root decayed, the gum contracted, and exposed the tooth still more. He took the gold plug out and found the tooth undergoing decay around it. He put in this substance, the tooth became more comfortable and did not feel as if it was plugged. Wherever a tooth could be successfully filled with gold he tried not to lose his faith that it was the best thing. Every man must restrict himself to the particular use the substance he uses is designed for. It used to be the case that dentists lost their reputation if they used anything but gold, but they understand each other much better now than twenty years ago. He would encourage others to take hold of and try new things. They have no business to object to any filling if it is going to be useful.

DR. WETHERBEE'S faith was not quite as large as Dr. White's.

For osteoplastic filling had received with him a pretty severe blow upon its head. Justice to the profession required him to object to its serious use among dentists. He examined a young lady's teeth where four or five cavities were filled with this material. In five or six months, from the time of filling, they became very uncomfortable, and at the end of that time three had lost their fillings, the fourth was bad, and the fifth alone remained fair. The teeth were quite sensitive, as the cavities were deep. He left the fifth a while longer, and a short time after the filling came out, and a cavity was left three times as large as formerly. Her teeth were of a fair quality, and yet in a year the fillings all came out. The dentist who filled them gave her as a reason for not using gold, that the changes of temperature caused it to contract, and it was more liable to come out. Dr. W. assured her that he was mistaken, and filled it himself with gold; none of it has yet come out. He would not have suffered the loss on the lateral incisor which she did, for $100. He had never seen such a filling that was water-tight, and he defied any man to make a water-tight osteoplastic filling, because the material itself is porous. He had repeatedly reddened blue litmus paper, and even the writing paper in which it was rolled was discolored from its acid. Therefore, his practice opposed it, and under no circumstances would he use it. If gold cannot remain in the cavity he would use some stopping, as Dr. Hill's, and do it at his own expense every three months, rather than use this material. He set his face firmly against using the osteoplastic fillings.

Dr. Burras (N. Y.) asked Dr. W. what the material he referred to was.

Dr. Wetherbee replied, the material usually called osteoplastic.

Dr. Metcalf asked, to what quality in the material he attributed this result.

Dr. Wetherbee replied, that he supposed they were due to the oxide of zinc. (Dr. W. says he intended to have said the *chloride* of zinc.)

Dr. Metcalf replied, that so far as his knowledge of chemistry went, oxide of zinc exerted no action upon the animal structure. About the chloride he was not as positive. But when these two are combined as oxychloride, the mixture was entirely harmless. In the article in the *Cosmos* for August, the method of preparation is given. It will not, if it is properly made, absorb water. He had frequently used it and had never experienced any difficulty from it.

Dr. Whitney asked Professor Barker for some light upon the chemistry of these materials.

Prof. Barker (Wheaton, Ill.) replied, that whatever knowledge

he possessed on the subject was theoretical rather than practical. From the mode of manufacture given in the *Cosmos*, he should doubt very much such a thorough combination of the oxide and chloride in the manner of preparation indicated, as would entitle the substance to the name "oxychloride." The oxide of zinc is perfectly inert, and would not therefore be injurious as a filling. The chloride is an active agent, inasmuch as zinc hardly neutralizes the chloride more than does hydrogen. Chloride of zinc is the material used as a soldering fluid by braziers, to dissolve the scale of oxide and render the metal clean, that a ready union with the solder may take place. Judging from its active properties, he thought its action would be decidedly injurious to teeth. From Dr. Wetherbee's statement that the osteoplastic had an acid reaction, he inferred that the mixture was not made in just the proportions to insure no excess of its components.

Dr. WHITE said, he was probably the first in this country to use oxychloride of zinc. He placed a tooth in chloride of zinc for three years. It was as sound as a new milled dollar when it entered, and he thought it was rather improved when it came out. He had kept chloride of zinc for weeks in a tooth and it did not act upon either the enamel or dentine. The animal matter is the very thing we want to remove by the chloride, and if it so acts, so much the better. His mother used to tell him that white sugar was bad for the teeth, but he had grown to think she said so rather to save the pennies than the teeth. He had since used it in a dentrifice as a grit preferable to cuttle-fish bone, armenian-bole, etc. He had placed teeth, without injury, into a solution of sugar and water for three years.

Prof. BARKER stated, that in justice to Dr. Metcalf he ought to state that oxychloride of zinc, if properly made, would not in his opinion injure the teeth. He said that he supposed the action of sugar was due to its fermentation, whereby it became converted into acetic acid, which would act on the lime salts of the bone. The relative hardness of dentine, enamel, cementum, etc., would cause the action of corrosive agents to vary immensely.

Dr. BARKER (Phila.) said, he had made experiments with a view to determine the action of vegetable acids upon dentine and enamel, and had proved that citric acid—that of lemons—had a considerable action. Tartaric acid came next to this, acetic acid had but little effect. In his experiments with citric acid, the enamel came off as a shell from the dentine.

Dr. MALLETT entered an earnest protest against the use of all osteoplastics.

Dr. Stevens (New Haven) said, that these fillings were regarded

by many in the community as better even than gold fillings. Some men, even in the dental profession, gave them too high a place. He thought, however, that Dr. Metcalf was too honest and straightforward to offer any material which had not proved itself abundantly good, in his hands.

Dr. Smith (New Haven) had found osteoplastic a good material. He had filled a tooth with Dr. Metcalf's preparation, for one of the editors of the *Journal and Courier*, which had given great satisfaction; so much so that an article had been written for that paper in its favor.

Dr. Hayes (Buffalo) asked Prof. Barker if a chemical decomposition did not take place between the oxychloride of zinc and the phosphate of lime of the tooth.

Prof. Barker replied, that there was no evidence to prove the occurrence of such a change. But even if it did, such an interchange of elements would break up the structure and disintegrate the tooth.

Dr. Roberts would use gold only, where it can be used. But when a tooth cannot by any means be saved permanently, then some other filling may be used. Therefore dentists should keep these materials on hand. When a man comes in and will have a tooth either pulled or filled with osteoplastic, what is one to do? Dentists must have judgment, and any man who runs one particular thing for filling does not do justice to the profession.

Dr. Smith said, he would rather fill children's teeth with osteoplastic than extract them.

Dr. Wetherbee said, that from what he had heard, this substance seemed to be the *dernier* resort, used only when it cannot be avoided. He would not use it, because if the able, honest members of the profession use it, quacks will, and quote them as authority; and so great injury will be done.

Dr. Buckingham said, that the composition of these osteoplastic fillings was so uncertain, that he could not depend at all upon any uniformity in them. He had tried the preparation of them at various times, and sometimes he obtained a substance as hard as stone, and at others he failed entirely, owing mainly to impurities in the materials. If the chloride of zinc is in excess, the mouth will constantly taste unpleasantly from it. Then, too, the fluids of the mouth vary in different persons, and the osteoplastic may itself be dissolved or it may be unaffected. He thought it was so uncertain in every direction, that it had better not be used. He thought it no reason for its disuse, because quacks would abuse the honest use of it, and employ it indiscriminately in every case. If it is a good article it is the dentist's duty to show the community that it could be used. If

it contains free chloride of zinc, he thought it would destroy the animal tissue. It would eat the bony tissue round the plug, until it falls out. He had seen this destruction of bone in the case of gold plugs, but from other causes. The osteoplastic filling may be useful in teeth too sensitive for a hard filling. A tooth so sensitive that it cannot be excavated, may be filled with oxychloride of zinc for three weeks. If it be then removed, it will be found that the chloride has softened the hard dentine so that it can be cleaned. It can then be filled satisfactorily with gold.

The Convention then passed to the consideration of the next subject, "Hemorrhage after extracting teeth. Treatment."

Dr. BURRAS considered compression by a dry sponge the best method.

Dr. WHITNEY had a bad case of bleeding from the extraction of a molar tooth. He made a wad of the silk nap from his hat, and arrested the flow of blood by crowding it into the cavity. He once extracted a molar for a young lady. On her return it commenced bleeding. He was sent for and found an artery severed. Simple, continued pressure with the finger stopped the bleeding.

Dr. BARKER said, the first important thing was to turn out the clot of blood after extraction, before any styptic should be applied. He recommended Monsel's salt, the persulphate of iron, as the best styptic he knew.

Dr. BURRAS considered the results of Dr. Whitney due only to simple pressure. He related a case of severe bleeding for some hours, which he stopped simply by changing the patient's position. He found the person lying on the side, and simply ordered, in a cheerful way, a little wine and water, and a period of sitting up in the chair. But for ordinary use, the dry sponge, which expands when wet, is best.

Dr. HILL had always succeeded with mechanical pressure. He sometimes used styptics, as alum, cobwebs, etc. But he felt obliged to Dr. Burras for his other idea, and that was the moral effect in saying so pleasantly, "give a little wine and water," etc. He thought much was gained by cheerfulness.

Dr. WOOLWORTH (New Haven) said, he was a student under the distinguished Dr. Muzzey, who recommended seizing the socket between the thumb and finger; he soon got a pressure which stopped the bleeding. It was often the practice to hitch a horse's head up high to stop bleeding at the mouth.

Dr. WETHERBEE, used a plug of cotton to fill the cavity. He dipped it into creosote, pressed out the excess, and then touched it in strong nitric acid. When pressed into the tooth, the bleeding stopped in less than two minutes.

Dr. Asay, had used pressure along with nitric acid, diluted.

Dr. Roberts thought, dentists would get along easy enough, if they only enlightened their patients properly on the subject. Any patient may stop bleeding by applying the pressure themselves. It often becomes bad in the end, when at first it was so small it could be easily stopped. He had used styptics, but considered pressure much better.

Passing to miscellaneous dentistry, Dr. Franklin read a poetical paper, setting forth the advantages of mechanical dentistry.

Dr. J. D. White was asked, if he had ever met with dentine, discolored, from the use of arsenic to kill the nerve. He replied, that many men could not go free and easy into the fires of experiment and practice for fear of getting hurt. Men could not hurt themselves by honestly doing their best. They are apt to contract into their shell of past experience. If any man should tell him he could fill a tooth without using something to lessen the sensibility of the dentine, he could do more than he (Dr. W.) could. He could not prepare a tooth for filling without some such material. He believed nerves to exist throughout the dentine, because it is sensitive. Formerly it was thought that sensation there was owing to the pressure upon the pulp, transmitted by the dentine. He read a paper in Newport combatting this view. He had met men who would not use anything to destroy the sensitiveness. He came near being drawn into the same shell, but luckily found it was made for smaller men than he was. Arsenic and creosote were the most villanous poisons known, and therefore are best to use as they act quickly. He had used arsenic for 23 years for destroying the sensitiveness of dentine. He used it dry so it could not spread. He triturated it in a mortar until it became fine, and then placed it in contact with the dentine. It is only superficial. He would try the chloride of zinc, or the creosote first, and if they do not succeed he would use arsenic. He used it dry, scattered it round on the inside of the tooth, and then covered it with cotton. It slowly dissolves and acts only then. When the dentine is dead it then may be all cut away. The use of creosote when too much arsenic had been applied he did not consider right, as it only helped the arsenic to pass into the pulp cavity. When it is dry it can be held more in control from absorption than when wet. That dentine had nerves he thought proved from the fact that he could destroy a part of a given surface and then cut this away down to the live part. The dentist must believe that the tooth is vital. Dr. Tomes had denied once in a letter to him that dentine had nerves. He had since admitted them to be there. Arsenic, he thought, did not destroy the bone in a chemical sense, for it is used to preserve anatomical speci-

mens. If asked what he would do if the tooth gets red, he would answer, drill into it and kill the nerve precisely as if the nerve was originally exposed. He stood there to tell what he did and not to oppose his practice to that of other men. If the tooth is reddened by arsenic drill it open. Never apply the arsenic on the proximal surfaces if it can be avoided. There is a side crack which will let the arsenic through to inflame the pulp. Rather drill out the inner side and kill the tooth from there. If the tooth is filled on one side let that plug alone. He used very seldom arsenic with creosote, because then the mixture very often penetrated easier and the pulp becomes inflamed. He didn't want any man to say he opposed his (Dr. W.'s) practice. He did not oppose any man who chose not to do as he did. If any man thought he could do better than he, himself, let him freely say so. He thought nothing could be used to neutralize the effects of arsenic.

Dr. Atkinson considered this matter as a basal one. He thought arsenic did destroy the sensibility of the tooth, though perhaps not in the sense Dr. White means. Artificial teeth are said to experience the feeling called "set on edge," from the fact that nerves refer sensation to their extremities. When arsenic is used dry, there is no action until it is dissolved. How can this be done? By the chemical affinity of the substance. When two substances come together water may be set free by the laws of chemical affinity, and dissolve the mixture. He was cautious of arsenic, because he did not know when it was done acting. Being too active, creosote added, only makes it worse. We must not assume, said he, that there are nerves in the animal structure where we cannot demonstrate them. There are none in the hair or the skin. In no instance had he ever seen the pulps sending projections into the tubules. By some change in the nutrital fluid in the tubules it was that inflammation ensued in the pulps. The degree of inflammation depends upon the depth to which it has gone in the tubules. He had oftentimes seen healthy dentine tender. This change was owing to the peculiar condition spoken of. The salts of lime are dissolved, leaving the animal matter in which they were entangled, and so softening the walls that they cannot stand up when being cut. Sufficient facts must always be taken to keep men up into the plane of truth. His method of killing the nerve, was to take the metalloid iodine and seal a piece up in the cavity with Hill's stopping. If the action of arsenic could be stopped, there could be nothing better. If arsenic must be used, dentists must cut and try, until finally little enough be found not to damage in all cases. His favorite remedies were, arsenic, iodine, and creosote. He thought this latter must be literally applied, and not in the diluted manner it had

been spoken of. Pure creosote would reduce the sensibility, and he never filled a tooth until after excavating and cleaning, he had washed thoroughly with creosote. He did not even dry it out, but left it in for the plug to be driven in upon. The best test for the purity of creosote, was to take a sample and mix it with some pure olive oil. If no precipitate occurs, it is safe to take it. If one does occur refuse it; it is impure.

Dr. METCALF, never would use iodine, because he thought it was liable to discolor the teeth. A piece of paper dipped in a solution of iodine and exposed to the light, becomes shortly blackened. He would consider the use of arsenic very much safer.

Dr. BUTLER said, he believed sesquioxide of iron was the antidote to arsenic. But he invariably uses a solution of iodine in the teeth. Perhaps they are a little discolored, but it soon passes off, and he thought this was a very good neutralizing agent for arsenic. It has also the advantage of lessening the sensitiveness of the teeth.

Adjourned at 12½ till 2½ P. M.

### FOURTH DAY—FRIDAY AFTERNOON SESSION.

The Convention came to order at the call of the Vice President, Dr. J. D. White, at 2½ o'clock.

The subject of mechanical dentistry was opened by the consideration of the question, "Surgical preparation of the mouth for Artificial Dentures; should the roots of broken and decayed teeth always be removed?".

Dr. BUTLER said, he would not always extract the roots of broken down teeth. Sometimes the external or central incisors are broken down where the crown only is cut off. He would not extract these. But the roots of molars and bicuspids, he would always extract. The incisors he would cut down, drill out the nerve canal, and plug the fang. It was difficult where all these fangs were extracted, to put in an artificial piece that should present a good appearance. It was difficult to make a purely artificial gum look well. But if the incisor fangs are allowed to remain, it will look much better, and will continue so, for no sinking down can go on there. If the fangs are left, they prevent the teeth coming together, which always present an unsightly appearance. When not extracted, the fangs keep the artificial teeth in position, and so preserve the contour of the face.

Dr. ROBERTS (New York) thought the question might equally be answered, by yes and no. Dentists could not have like results always, for things could not always be done as they would like to do them. He always extracted all the teeth for the insertion of a

full set in the upper jaw. There may be cases arise, where it is best to leave it in a root. If there be a single tooth, the root of which is firm and will stand filling, it would be better to put a pivot tooth there. He had a case, where the circumstances required him to place a plate over the roots, being unable to persuade the gentleman to have them removed. The molars on one side of the upper jaw remained, but those on the opposite side were gone. The teeth and roots left, were sound. The patient wanted the new set made without extracting these roots. He made a platina plate, spliced out the bicuspids on both sides, and made the plate fit over the fangs. He told the patient they might fail; but wore them three or four months satisfactorily. He always preferred to remove even sound teeth.

Dr. Atkinson, considered that all general principles must be arrived at, through experience. His own had taught him that to preserve the shape of the mouth, the roots ought to be left if they were perfect, down to the edge of the alveolar process. Even if every alternate one was diseased, it would be better only to remove these, leaving the sound ones. Neither in whole or partial sets would he remove the healthy fangs. There were some cases of peculiar conformation of the jaw, where he would remove them. He gave his method of avoiding the change of the fangs to an unhealthy condition, and their protrusion below the jaw. He thought that hypertrophy of the cementum protruded the fangs. He had had cases where plates were put in over the fangs, which had been used six or seven years by very careless people, who have used them as they would natural teeth. He had not seen as many plates cracked by the protrusion of the fangs, as from the absorption of the gums, when the plate had been fitted too soon; supposing the absorption was completed. There was a man in his town, who could do anything, (so he said himself,) who would fit a plate over a tooth, even very much decayed. He used vulcanite, and advertised to do work very cheap. He (Dr. A.) preferred to leave the roots in to secure a firmer attachment for the muscles, and to obtain a better distribution of force upon the gum.

Dr. Sutton (Greenport, L. I.) said, he could conceive cases where it might be impossible to let healthy fangs ever remain. There were cases also where the gum was so formed as to be much exposed, where a better appearance might be obtained by allowing the fang to remain.

Dr. Roberts said, he thought no root could be shut up tight under an atmospheric plate, so but what the saliva would penetrate to it and inflame the periosteum. Putting a plate over a fang would

project the teeth forward so as to injure the appearance more than if they were removed.

Dr. HAYES quoted a case where he put a plate over two fangs which had been in use twelve years, and were still perfect. He wanted to remove them at the time, and always preferred a clean mouth to work in.

The next question, "When shall we insert pivot teeth?" was answered by Dr. FRANKLIN: "When we have a perfectly sound healthy root to operate on, and the operation can be easily and satisfactorily done."

The third question, "The relative merits of the various materials used as a base for artificial dentures and the method of mounting them," was taken up.

Dr. WHITNEY, had made for many years artificial sets upon silver, gold, platina, and continuous gum, and vulcanite bases. Of all these he preferred the vulcanite, for he was sure of a good fit every time, it was more cleanly, looked more like natural teeth, there was no metalic twang in the mouth, it was furnished at a less price to the patient, and pays as good a profit to the dentist. He made some years ago a silver set for a man, then a gold, and afterward a rubber set. A few days before he left, a man met him in the street, and asked him what he thought of rubber as a base. He took him into the bank where the man for whom he had made the rubber set was, and asked him the question. He replied that Dr. Whitney's word was good for all he might say in favor of rubber; that he had used it constantly for four years, and expected to carry it to his grave. He had never had a case warp or get in any way out of order. He never had any trouble from shrinking of the alveolar. It was better for lower teeth than any other material.

Dr. PARMELE (Hartford) had himself worn both gold and silver, and lastly rubber plates, and as for wearing more of the latter, he couldn't do it. It produced a nasty, sour, sickening effect in his mouth. He had made a set for a lady whose experience was similar to his, and she could not wear it at all.

Dr. ROBERTS concluded, that if all were constituted exactly alike, then Dr. Whitney's statement would be true, that rubber was the best thing to use. The dentist should always try to do the best thing for his patients. He thought that when properly made, nothing was equal to continuous gum on platina. Gold was very useful, and so was rubber, but continuous gum was the best thing he could make.

Dr. MALLETT had had some experience with rubber. He made the first rubber plate in the United States. He could prove it, had not the man who was associated with him died. It was some six years

ago that he brought forward practically the insertion of artificial teeth on a rubber base. Mr. Bevins, afterward of Boston, was his assistant. This was the year before Dr. Putnam of New York began its manufacture, and claimed the credit of originating it. His experience proved that there was nothing equal to it for inserting artificial dentures. He could obtain a more perfect fit than with any other material, and it felt much easier. He had inserted many sets, and had never heard of any trouble from them. One lady only thought she could taste the sulphur of the gum. He had put up platina work for years, and considered it better than any other class, except rubber. He had never worn them himself, but persons who had both gold and rubber from him, liked the latter best.

Dr. Hill corroborated the fact that Dr. Mallett was the first to use rubber for dentures. He had been shown a piece in Dr. Mallett's office, which was the first he ever saw or heard of. He never had put rubber up himself, but he had inquired somewhat as to its merits, and from being much prejudiced against it, his prejudice had given way, until now he regarded it with great favor. Still, if a person left it to him to decide which to use, he would put in continuous gum as the most beautiful and perfect. He did not depreciate other things, but inserted this as the most satisfactory.

Dr. Parmele said, he had no prejudice against rubber, but what he had stated was a matter of fact: he couldn't wear it.

Dr. Buckingham said, that he understood Dr. S. W. Evans claimed to have first vulcanized rubber, and to have put in a set on it for Mr. Goodyear.

Dr. J. Allen (New York) spoke of his method of constructing under sets in cases where the gum contracts, and by this the fit is lost and much trouble ensues. The plate then is apt to be buoyed up by the gum, etc., and by adding a flange on the outside of the plate, so that the cheek would rest on it, it would hold it down most beautifully. So far as his experience went — and he had made scarcely any work except continuous gum, upon a platina plate, for whole sets, and gold for small work—his confidence in the continuous gum was increased. He could not be prevailed upon to go back and use anything else. He made it a point always to retain all the lower teeth he possibly could. Even if the upper molar teeth be removed, the lower should be left. After the first baking he transferred the plate again to the metal die, and forced it back to the form. The plate will then fit in the mouth as at first. He never had seen any plates of any kind fit better. His were just as perfect a fit as could be got.

Dr. Burras said, it appeared there were only two materials in much favor, vulcanite and continuous gum. Dr. Allen was wearing

an upper set of the latter, and knew whereof he affirmed; and had he pursued the same careful course with vulcanite, he would undoubtedly have come to the same result. His perfection of result was owing to his careful operation more than in the material. He (Dr. B.) used both materials and recommended both. He suggested that Dr. Allen remove his teeth, and show the alteration in his appearance. Having heard so much about metaphysical, would it not be well to have some real metamorphosis?

Dr. Franklin considered the relative merits of these materials to be due to the amount of good which can be done by the employment of their instrumentality. He thought more good could be accomplished by the use of vulcanite, than any other material. The price has much to do with the value of a substance, and the material which can be furnished cheapest, and precisely as good, is the best. All the various methods, in the hands of good men, will yield good results. The beautiful, and almost indestructible continuous gum came near being overthrown in its earlier days, by quacks putting up worthless compounds under its name. The market has been flooded with these bad compounds, and at four times the price, too, of tried materials. He thought any taste in the mouth from rubber to be entirely a constitutional difficulty. He had known a woman who had a bad taste with gold even, but who experienced no difficulty with rubber. There are difficulties in all things. The plate should always be as narrow as possible, for a wide plate is bad. In regard to the adaptation of the various materials to the gums, he thought that metal plates could not be adapted with the facility that rubber could. The dies cannot be made exact for platina, even, soft as it is. One trouble in vulcanizing is that it is done too quickly. In every single case, where there is any thickness, it must take time to cook through. Of course, the thin parts will be done sooner and harder than those which are thicker.

Dr. J. D. White remarked, that all were probably aware that he had not had time to give any attention to this subject. He had been waiting for these materials to be perfected, and was resolved neither to condemn nor to favor them. Patients vary much in their opinion, some being for, and others against them. He considered it would be a long time before he could decide upon any one. People generally claim too much for a new thing. He said Dr. Parmele's experience had been the same as his. But the last two or three years he had been looking favorably upon rubber, and would perhaps soon have it put up in his office. He had so much else to do that he could not afford the time, at this period of life, to learn it all himself.

Dr. Atkinson said, the last flame it was which burned the bright-

est. He apprehended that it was so there, and that some of them would get their fingers burned with new materials. Men all have a prejudice against new things; against what we don't know about. He thought there was no means of measuring the relative merits of these bases. He should advocate his preference with candor and love. For entire dentures he considered continuous gum on platina unparalleled. For under sets he thought nothing was so good as rubber. He put a piece in his own mouth, and went home and ate dried toast bread to use it the first time. Before he had used a gold plate. There are cases on record of an unpleasant taste in the mouth by the use of everything of the sort. In Chicago a case had been related where this peculiar pathological condition was produced by any one of the materials. His own deductions lay between two: for upper partial sets he used gold. For an entire set where "plumpers"—as they are called—are needed, he preferred first continuous gum, and next to this rubber. He related a case where platina, gold, and silver sets had been worn without giving satisfaction, where a set on vulcanite, put in by Dr. Butler, had operated well; and this too on the fastidious taste of an English nobleman.

Dr. Allen said, he recollected the cases referred to by Dr. Atkinson, where there seemed to be an unpleasant condition of the mouth from platina plate. He thought it due to the admixture of other metals. When the platina plate is struck, there is always more or less baser metal comes from the dies. Lead will blacken the finger if rubbed on it. If the platina plate be struck between metal dies, and then subjected to heat before removing the baser metal, this joined with it and injured it. He wondered that there was not more damage done, and that the metal was not much oftener destroyed. There is a coating of baser metal on the surface of the plate which must be removed by immersion in acid before subjecting it to heat. It is said there are 500 causes for the stoppage of water, and so it is here: a very little thing will make a bad result. A little oil would prevent the plate from taking up so much base metal. He had never heard of any difficulty of this sort from plates of his manufacture. As to the weight he would defy any person to tell 20, 30, or even 40 dwts. against the atmospheric pressure.

Passed to the next subject, "Miscellaneous subjects relating to Mechanical Dentistry."

Dr. White said, that he had never thought the weight of a set of teeth was a disadvantage. He had a lady patient who insisted that her upper set was too heavy, which could not be, as they stayed up.

Dr. Searle said, he had a case which gave him some trouble. It was in getting the plate to stay up even when it was well fitted.

He took an impression in a former case twice, but could not make the plate adhere till he punched a hole into the air-chamber and covered the opening with a small valve of oiled silk. Then it went up the first time. The other patient, a sister of this one, could not suck the plate up. Even when fixed like the other, she would do her best but could not make it stay up.

Dr. ALLEN said, the wax impression frequently misleads the operator as to the depth of the jaw. The muscles on the sides come pretty far down, and the impression is often taken over them. The plate is then made too deep, and the muscles in working will throw it off. Then it is that the patient complains that it is too heavy. After taking the impression he trimmed the cast down by the patient's mouth. He swedged the rim of the counter die at the same edge. The weight of a plate was no objection if it was a perfect fit. If it is too wide, the action of the muscles forces it down and off.

Dr. ASAY said, his patients could not readily draw the plate up. His custom was, after he had prepared the impression, to take a piece of tea lead, cut it oblong, lay the centre over the bony palate, and a second, third and fourth piece nearly to where the plate terminated. He then rubbed it into shape with a burnisher. Weight was an advantage on the lower plate unless it had projections.

Dr. PRIEST had found that in rubber-work it did better without a suction cavity than with. The plate stays better, and the patient can suck it on.

Dr. BURRAS referred to Dr. Franklin, to know about a set of teeth, which weighed, upper and lower together, ninety pennyweights!

Dr. FRANKLIN said, the weight was 105 dwts! That he made them, and was so doubtful whether the man would take them, having had a very light bone-set, weighing only three or four dwts. before, that he had them duplicated in vulcanite. He did not allow the patient to handle them, but put them in himself, and so good was the fit that he said nothing about the weight. He thought that weight had nothing to do with the question if they were a good fit. He thought that the fault of not selecting teeth adapted to the temperament of the patient one cause of failure in artificial dentures. Not a day passed that they did not see men with teeth which belonged to some one else. Some good dentists even buy up a lot of teeth of one shade, and use them for all persons from the ages of eighteen to seventy-five. A nervous man wants a nervous-looking set of teeth, and so of every other temperament. Where these are distinct it is comparatively easy to select, but where they blend with each other, as in most cases, it becomes very difficult.

Dr. BUTLER said, many men selected well, but failed to arrange

well. Others make a good plate, and mount somebody else's teeth upon it. To him nothing was more pleasant than a fine set of teeth. If they can be told as artificial at a distance, they don't look well. They must be so made as not to be thought artificial. Is there any rule by which teeth can be properly and unerringly selected?

Dr. CROSSETT (North San Juan, Cal.) said, he came from California rather to be instructed than take part, but the information he had received was sufficient compensation to warrant him in coming from so far. He left New York a year and a half ago, and found the dentists in San Francisco were using everything base for fillings, but principally "quartz filling," which was soon after abandoned. He found there a prejudice against these materials for bases, and saw only two individuals who used continuous gum. In regard to vulcanite he wished to be informed. Dr. Bridges came to where he was, eight or nine years ago, and showed him continuous gum, and he tried it then and made a failure, since which time he had abandoned it. He supposed improvements had been since made, and from the favorable testimony he had heard he was inclined to try it again.

On motion of Dr. WHITNEY, a vote of thanks was given to Prof. Barker for the interest he had added to the meetings of the Convention.

On motion of Dr. MALLETT, a vote of thanks was given to the press of the city, especially the *Journal and Courier*, for the notices they had printed concerning the sessions.

Pres. ALLEN remarked, that he had attended many meetings o the American Dental Convention, but had never been to one from which he thought greater good would flow than this. All here have been benefited by thus coming together, and their march will now be onward and upward. Considering the state of the country, calculated to distract the mind, the interest here has been deep and profound. This Convention is not going to fail, but it will still progress. He closed by thanking the members for their kindness and indulgence to their chairman.

On motion, the Convention adjourned, *sine die*.

## "LIFE."—DOES BEING IMPLY THE RIGHT TO LIVE?

A PAPER READ BY DR. WM. H. ATKINSON.

As certainly as that organ implies function, does being imply the legitimacy of that existence.

Here we are met by the objector with partial and distorted statements, upon which men make up fractional judgments, which they hastily put forth as *the* law.

The mere rudiment of an organ in a fractional, undeveloped state is not capable of exercising function, even under the most limitless permit of freedom; but it does foreshadow the possible function as soon as the law of perfectibility has completed conditions. In like manner does being imply the right not only to possession of the abstraction to live, but also to be sustained in active and joyous exercise of all normal powers under the proper limitations. Hence all grades of life must have a where and a when in exact equipoise of their natures—some time and place in the vast universe of the creative force. If this complete harmony of the correlations of being were attained, no place would be found for discordant and invidious "RIGHTS."

Right and wrong, in the common appreciation, partake so much of the primary selfishness of profound ignorance, that all rights but those of the arbiter of the especial case at issue are at once arbitrarily ignored. He forgetting that no wrong can be perpetrated in even the smallest degree to any one, without at the same time opening the whole flood of wrong, not only to the one particular instance, but to the entire system of things, be it in the most confined or the most extended sense.

These two much abused terms then, it appears, admit of partial or complete definition, the latter of which they have never yet practically had since that grand lapse of the divine image that was the inception of this planet and appurtenances. And just so long as we expect perfection or completeness here, will we prove our primary undeveloped state to all who have wholeness of perception to understand that we as yet but see through a glass darkly, and are in a metamorphic condition.

Do you say, we very well know that, spiritually, the statement is correct; but we doubt the proposition physically applied?

If it is correct spiritually, it is glaringly certain corporeally. All consent that *function*, the *act* of organism is spiritual; but deny that organic relation depends upon a spiritual type to construct bodily forms, thus symbolizing the type and producing visible acts which are but the outcrop of the invisible omnific spirit power, that we could not apprehend until it had thus clothed itself in the coarse garb of materiality, expressly to awaken the sleeping character within us to aspirations for a higher life, making us willing to pass cheerfully the cataclysms of the morphological lave.

A thing may seem wrong when judged in the light of a partial understanding incomplete statement, that in its reality is in exact agreement with every thing else in the universe.

If human metamorphosis were complete, all the labyrinths of science would be as clear to us as the plainest mathematical propositions or logical processes. Just so long as *men* differ about the perception of the eternal principles of truth, just so long have we the patent testimony before us that they, one or both are as yet incomplete, or only passing

through the clarifying and illuminating processes of morphological developement (only attainable in angelhood).

The divorce of the sciences, like the mosaic divorce, resulted from a desire to accommodate the law to the ignorant selfishness ("hardness of heart") of individuality.

Each *branch* setting itself up for and giving out that it was the *tree* of knowledge—and honestly too, for it does not know that there is knowledge beyond the limit of its own field, until after it has outgrown its primary experiences by contact with other branches, moved by winds and storms, which are, like itself, but parts of the grand trunk that supports and needs them all. Thus, we plainly perceive that perfectibility can find no absolute definition in its great sense, short of the Infinite himself; let this then be the grand centre to which all our conjugations (not divorces) may constantly converge, and then the *harmony* of the sciences will begin to find approximation to definition in our mental centres.

Every human soul is in connection with every other human soul in the universe, just as every star is in connection with every other star in the vast firmament around us. If we consider the relations subsisting between the stars, it is very evident that their rays all commingle in an infinity of ways. Those at the greatest distances probably not being to human eyes perceptible one from the other, but nevertheless supplying fractional pencils of light, quite evident to the human eye when assisted by glasses of high power. This proves that a certain quantum of light is necessary to produce vision in us when impinging upon a given space of the retina, for as soon as the space is enlarged by the magnifying power to a given size, vision becomes at once practical.

Our electrospheres send out emanations like rays of light to the vastness of space, and communicate appulse to other electrospheres of like tenuity, thus establishing a sort of commerce between them that may be or may not be conscious to the individuals exerting the influence.

It is the exception rather than the rule, to be conscious of the effects we produce on those about us. *Voice* is an example of this. All things have voice to him who *hears*. Voice of gently falling snow and rain; voice of rustling grass and dying leaf.

The babe, the child, the youth, the man, may all be distinguished by the voice. The matron, maid, or virago are subject to this law of voice in the exact ratio of their predominating state. The heart that has never been born out of its self-love, cannot possibly utter a full love note.

Bird, beast, and bush, rock, shell, and tree, have voice themselves or modify other voices produced in their presence.

The want of harmony in nature so much complained of, is but the criticism of the novice upon the advanced processes of a science too high for him, for in the great sense there is no schism nor inharmony.

The primal who enjoys melody, and calls the different notes producing it harmony, will of course find fault with the most perfect harmony that a full orchestra could produce: just so does the primal philosopher mistake the flats and sharps of life's contact, because he never rises enough above them to arrange them properly.

Our soul petals, like the geranium leaf, or the corrolla of fine-scented flowers, give out a richer fragrance when bruised. So much is this so that it has passed into a proverb, "That the dying notes of the swan are the sweetest strains he ever utters." So he who can enchain an audience in wrapt attention, has paid or will pay in suffering for the elevation of power he possesses in the exact ratio of its exercise, if it be not the immediate inspiration of divine influx from above, almost unconsciously passed on to accomplish that whereunto it was sent. For whenever we imprison this power, and individualize it so as to be able to exert it at will, we have stolen the livery of heaven to serve selfish and grovelling ends, and must be made perfect through suffering. It is easy to die, but to come to life is what causes the convulsive throes of organized corporeal existences. In fact, pain is only predicable of a conscious existence, and hence cannot exist when this does not exist or is suspended for any cause. Just what death is has not yet found adequate definition. If "separation of soul and body" be a correct definition, then death is but relational and partial, not eternal nor complete, for the same entities are constantly forming new combinations in death as well as in the various phases of life. The rule is throughout the organized world, one form must die that another may live, so that which annihilates one, only gives new and accelerated birth to another stage of the advancement of life on this planet. Were we to look upon our death as a new birth, and that into a higher life, it would strip the old monster of all his terror, and bring him forth rejuvenated into, truly, an angel of light, pointing the way to paradise.

Metamorphosis would be a more strictly correct term for the process called death.

Much would be learned from the little silkworm, or of any of the moth family, could we but interrogate them as to their memory, recollection, or consciousness of the phases of life through which *we* very well *know* that they pass. Angels, no doubt, look upon us undergoing our metamorphoses, and plainly perceive the exact identity of our being, with its additions and subtractions as we do these little creatures, who also are held by the same divine tether. How happy and blessed would it be if we were willing to shed the old cuticle of first experiences with as little trepidation or clinging as they do theirs, and as willingly and earnestly set about the work of prehension in the advanced state, forgetting the things that are behind, and vigorously reaching forward to the necessary growth and improvement that we may the

sooner and the more vigorously put on our angelhood, corresponding to their perfect or winged state.

The marked distinctive differentiation between man and his fractional stages of life in the mineral, vegetable, and animal representatives is, they all have a certain limit of improvement or perfectibility, while he knows no such normal limit. Those creatures who are only in possession of the two elements of being,—instinct and knowledge,—are as perfect at maturity as in advanced age; while those that add the intermediate grades of mental activities are capable of education in the ratios of the complications of the processes of which they are mentally capable.

To make lines of demarkation here would be too severely analytical; nevertheless, I do heartily acknowledge, that any true synthetic statement must bear the closest analyticism even down to its molecular minutiæ. But time would fail us to eliminate the full detail.

An incontestible "testimony" of the progressive formation of bodies is laid up for us in the Earth's crust, whose formation latentized so much heat in the process of crystallization, formerly derived from the internal fires of the globe, as to cool down the surface to such a degree as to necessitate the higher organizations to take dominion of the field, who might receive the heat from the sun direct, and store it in organisms, thus enabling them to evolve it in such degree as to defy the exigencies of temperature to a degree not yet displayed by the low. tropical gigantic plants, who were fed through the influence of caloric set free from internal furnaces alone. The sun's heat as yet not having penetrated the thick clouds and mists then forming, the dense atmosphere loaded with the more ponderable and irrespirable gases. A diffuse light favoring such monstrous growth, a law that prevails even to the present, in the dense dark tropical forests and marshy lagoons abounding in enormous endogens, bamboos and rushes.

There is no mourning requiem in nature for the extinct growth of the primeval times, but rather a hilarious rejoicing in the clearer and purer atmosphere in which an indefinite advance in abundance and variety of much finer organisms obtain.

To him who denies this necessarily progressive nature of all things, and successive elevations and refinements by the morphological processes of life, the whole planet with its innumerable inhabitants, yea and heaven itself, is but one inexplicable senseless jargon of atoms, tissues, organs, and beings, in ceaseless antagonism.

Who ever heard of the hungry kite sparing the tender sparrow, or having his repose disturbed, while digesting it, by horrid visions of the injustice he had committed to get his dinner? or of contemplating the keen distress of the nestlings he had orphaned by appropriating to his own selfish use their natural guardian and progenitor? Would he not

rather with a knowing wink of his eye, or significant nod of his head, congratulate himself upon the nice and easily digested dessert that awaited him when hunger should prompt the innocents to their loudest plaint, exposing their retreat, and insuring their destruction?

Or who ever knew a miser to relax his grasp upon his ungodly gains when told that gaunt want, starvation and death were imminent in the household he had wronged? Do not such rather reason with themselves and their reprovers, that if they had not come into possession of this property or means, that some one else would, and upon the whole it was quite unavoidable, and thereupon at once dismiss all qualm of conscience, saying it is no matter of *mine*, let the legal and proper town authorities take charge of the miserable paupers, and not be disturbing honest quiet people with the spiritless, useless offspring of an improvident parentage?

A close scrutiny of the world of mankind will display to the earnest inquirer, that all the "brute beasts that were made to be destroyed" as to personal identity in the true sense life, are not quadrupedal in their configuration of bodily existence. "The runner is not crowned except he strive lawfully." The necessity of each being in his proper "lot and place," to insure advancement, is here clearly set forth. Then as abstract individual being proves its legitimacy within its normal limits, and activity being the *sine qua non* to an equable and vigorous development and growth, whenever these conditions are interfered with, by any competent force, arrest, distortion, or destruction, awaits the organism concerned.

These things being so, how infinitely important does it become for each to take *heed* that he coincide with the laws of his being in all their multiplied phases. To do which, intelligently, involves the necessity for us all to be busy about the work we have to accomplish to avoid being set back, monstrousized, or ground to powder. Setting back, when found in inharmony with our fellows; distorted, when opposing ourselves to the physical laws, or when, in our foolish selfishness, rushing heedlessly on the "thick bosses of Jehovah's buckler," in the vain attempt to abnegate His existence, bringing, with fearful rapidity, *annihilation* to ourselves as to original identity!

## MASTICATION AND ARTICULATION OF ARTIFICIAL DENTURES.

PAPER READ BY DR. T. H. BURRAS.

To distinctly understand the subject of mastication, and clearly comprehend the aim and object for which Artificial Dentures are constructed, it will be necessary to have some knowledge of the parts, particularly of the composition of the tempero maxillary joint, that is, of the liga-

ments by which its motions are restrained, and the muscles by which those motions are effected or produced.

The inferior maxillary bone is articulated by its condyles on each side to the glenoid cavity of the temporal bone. This glenoid cavity is bounded anteriorly and superiorly by a prominence called the articulating eminence, and is of some considerable consequence and influence in controlling the motions of the jaw in mastication. From the relative position in which parts composing these joints are disposed, and the intimate connection of the inter-auricular cartilage and the condyles, this articulation is very peculiar, somewhat nearly resembling that of the elbow joint in its motions. There are three ligaments appertaining to this joint. The external lateral, whose superior extremity has a broad attachment to the articular eminence and outer edge of the glenoid cavity. It extends obliquely backward, and is inserted upon the outer side of the cervix of the lower jaw. The internal lateral is attached by its superior extremity to the inner edge of the glenoid cavity, passing in an oblique direction downwards and forwards, and is inserted at its inferior extremity to that little bony projection, on the lower jaw, surrounding the posterior maxillary foramen, where the dental vessels and nerve are protected by it from the motions of the internal pterygoid muscle. The stylo maxillary, or suspensory ligament, arises from, and is attached to, the styloid process of the temporal bone, and is inserted to the angle of the lower jaw. Its use is to restrain the motions of the lower jaw, forward upon the articular eminence of the temporal bone.

The motions of the lower jaw are controlled by the muscles, and are somewhat free and extended. The simple ordinary motions are depression, elevation, protension, and retraction, and I may add, lateral or partial rotation. When the lower jaw is depressed the condyles are advanced upon the articular eminences, and the angles of the jaw are carried backwards; consequently the centre of motion is below the condyles, allowing the jaw to be depressed to a greater extent than if the motion of the condyles was restricted to the glenoid cavity.

The only muscle that acts as a depressor of the jaw is the diagastricus. The origin, insertion, direction, and pulley-like attachments, are beautifully adapted for the performance of this office. It arises from the root of the mastoid process and os hyoides, and is inserted into the lower and anterior portion of the chin. Its use is to draw the jaw downwards and assist in deglutition.

The elevation of the jaw is performed by four pairs of muscles, the combined power of which is more than most persons would suppose possible, having seen a statement of force exercised by them of 450lbs. pressure. They are the temporales, masseters, pterygoid, internal and external.

The temporales has its origin from the os frontis, portion of the os

temporis, back part of the os malae, and the temporal portion of the os sphenoides. It is inserted into the coronoid process of the lower jaw. Its use is to move the lower jaw upwards.

The masseters have their origin from the malar process of the os maxillare, the lower edge of the os malae, and the zygomatic process of the os temporales. They are inserted into the base of the coronoid and the condyloid processes. They serve to raise and move the jaw backwards and forwards.

The pterygoid internus arises from the inner surface of the outer wing of the pterygoid process of the sphenoid bone, and from the process of the os palate, that helps to form the pterygoid fossa. It is inserted into the inner side of the lower jaw, near its angle. Its object is to raise the jaw and rotate it to one side. The pterygoid externus arises from the external alae of the pterygoid process, part of the adjacent maxillary process, and ridge of the temporal process of the os sphenoides. It is inserted at the fore part of the condyloid process, and likewise into the capsular ligament of the lower jaw. Its use is to move the jaw forward and to the opposite side, that is when the muscle acts singly. When both act in conjunction the jaw is brought horizontally forward. Its insertion prevents the ligaments of the jaw from being interposed in the peculiarity of its motions.

The process of mastication is performed by the operation of these muscles, the uses of which have just been described, and consists of two distinct actions: biting, or the separation of particles by means of the incisor teeth, and chewing, or the process of grinding by the molars By a repeated continuance of this action the food is ground, comminuted and reduced to a pulp, and is thereby prepared for the act of deglutition or swallowing.

In observing this process, and examining the motion of the lower jaw of children before the teeth are disrobed, there will be considerable deficiency observed in the articulating process of mastication, in not having that free and extended motion which is permitted in the adult. The glenoid cavity being circumscribed to very little more than the size of the condyles, and the articular eminence not being yet formed, consequently the motion of the jaw of infants is confined to simple elevation and depression, with scarcely the least approach to rotation, the condyle being the centre of motion in this instance. A sequence almost parallel with this is produced in aged persons who have lost all their teeth, although the state of the mouth, and the circumstances producing this peculiarity are widely different. After the complete removal of all the teeth, and the absorption of the alveolar process has progressed to any great extent, the face will become considerably shortened, in some cases, by nearly if not quite the length of the upper and lower teeth, that is, when the mouth is closed to the occlusion of the

lower to the upper jaw. When the lower jaw is retained in the position it occupied before the teeth were extracted, the opening between the jaws is sufficient for the introduction of food and most other purposes, and it is seldom necessary to open sufficiently wide to bring the condyles forward on the articular eminences. The operation of mastication in an aged person of this description, is very similar to that of an infant, and confined chiefly to the depression and elevation, and not having that alternate lateral motion. When the lower jaw of a person in this condition is closed, the chin describes a large circle and is thrown very much forward, projecting far beyond the upper jaw, so that what little mastication is performed is effected by the sides of the jaws, the only parts that can be brought in contact. In procuring a correct articulation for artificial teeth the profession has been very much perplexed, and many artificial dentures, otherwise comparatively perfect, have been rendered useless by this operation having been negligently or imperfectly performed. And as there have been, heretofore, no established usage or particular directions adopted by the profession in obtaining correct articulations, I desire to give a mode of practice I have pursued for some years with great satisfaction to myself, and the various members of the profession to whom I have communicated it have given it their *unqualified* approbation. This, in connection with an ardent desire to render as perfect as possible all the manipulations in the practice of our profession, is the only apology I can offer for trespassing on the valuable time of this Convention.

After having procured a perfect adaptation of plate or base to the mouth, set around on it, on the alveola ridge, a rim of wax, as near the position to be occupied by the artificial teeth as judgment may dictate, being careful to have this rim of wax adhere to the plate or base so as not to be displaced by the operations of taking the articulation; then while the plate or base is in its correct position in the mouth, direct the patient to swallow, or perform the act of deglutition, and retain the jaw in the same precise position of occlusion as it was on completing this act of swallowing; then by parting the lips you will perceive the relative position of the jaws, in an exact situation for a correct articulation. As nature herself, by this operation of swallowing, produces an equalization of motion in all the muscles that move the jaw; as there is as much distinctive individuality in the peculiarity of the voice, as there sometimes is in the singularity of the position of the teeth, an imperfect articulation of an artificial denture, producing an effect on the tempero maxillare joint, will almost entirely obliterate this distinctive personality, and renders a correct articulation of artificial teeth positively necessary to preserve that individuality so peculiar to many persons; therefore the more perfect and natural an arrangement of teeth and articulation is procured and preserved, the more complete and harmo

nious will be that distinctive individuality, which is frequently changed, if not entirely destroyed, by imperfect articulations from artificial dentures.

## CAUSES WHICH RETARD DENTAL PROGRESS.

PAPER READ BY J. ALLEN.

For more than two thousand years dentistry has been gradually advancing, though slowly, yet more and more rapidly as its progress with the march of time has been onward. There may be those who will note the present era as the time when dental surgery reached its ultimatum. So thought many of our predecessors in years gone by, but the future historian will doubtless look back upon the year eighteen hundred and sixty-one, as forming only a connecting link between the past and the future, and that a still brighter period in our profession will mark the page of history. The rapid advancement of dental science within the last thirty years, is only an index of what is to come. The facilities now afforded for acquiring a thorough dental education through the instrumentality of numerous well-qualified private preceptors, together with the dental colleges, dental associations and dental literature, in this country and in Europe all point with peculiar significance to a brighter future. The march of improvement is still onward; the sun of science continues to shed its genial rays upon our profession, and to develope more perfectly the principles upon which it is based. But still, with all these advantages, and all that has been done to bring dental surgery forward to its present stand-point, much remains yet to be accomplished.

We deem it proper, therefore, to notice some of the causes which retard our onward progress. There are many who never venture out of the old beaten track of their predecessors; they will acquire, perhaps, the same degree of skill, go as far as others have gone, but no further. They, however, nobly sustain the profession as they find it, and their valuable services have done much to ameliorate the condition of those who were so fortunate as to fall into their hands, and many of their operations will stand as truthful records of their memory, long after they shall have gone to their last home.

If these worthies would venture onward in some unbeaten track, their sphere of usefulness might still be enlarged, for in their reconnoitering they might, perchance, discover some new principle or improved method of accomplishing what is already known, and thus add to the common stock of dental science, but they decline doing this, and rest upon the laurels already won by others.

Another cause that prevents advancement rests with those who venture on a little way, and then turn back before their point is gained,

having reached only the conclusion, that if it were possible to accomplish the object they had in view, it would long since have been done by some one else. Suppose Harvey had reasoned thus when he commenced his investigations with reference to the circulation of the blood. If he had, the world might yet have been in darkness upon that subject.

Suppose Columbus, after having made a voyage or two in pursuance of his favorite theory, had failed to discover this continent (which to others then seemed to exist only in his brain), and had abandoned his object as hopeless, he would not then have been the means of shaping the destiny of the millions of our race, who are now enjoying the benefits of his conceptions, his energy, and perseverance.

If Fulton had listened to the advice of friends, whose minds were not enlightened like his upon the subject of steam-power, he never would have developed that great principle which has revolutionized the commerce of the world. But he saw in his mind's eye, the engine working, the steamboat moving, the benefits germinating, which would redound to his honor and to the prosperity of nations yet unborn. That which he saw only within the small compass of his brain, we can now see in the forms of steamships, steam cars, steam mills, steam factories of such gigantic proportions as to fill the mind with awe, wonder, and surprise.

We might dwell with interest upon the thousands of inventions and improvements that mark the progress of science and civilization, all of which first originated in thought, then dwelt in the secret chambers of the human brain, where they were modeled and perhaps already working in the spirit of man, long before they were clothed with a body, and developed in practical forms.

These examples show us the great importance of vigilance and perseverance also in our profession. Again, it is thought by many that our profession is not sufficiently remunerative to justify much expenditure of time and money, in the preparation and pursuit of dental practice. This feeling begets apathy which retards our progress. Apathy should not find a lodgment among us, for two reasons; one, because our own prosperity requires constant vigilance; the other, because the community in which we live claim our best services. But, says one, I have to compete with very incompetent men, who charge but half price for their services, and I must meet them on their own ground. Not so: this is the wrong ground to occupy; it is far better to avoid those low competitors by keeping off their platform. Seek a higher level; the most effectual means of putting down empiricism is to soar above it, and help others up rather than lower yourself. This position will command a practice both lucrative and honorable, for the public are not so dull of perception as to be unable to discriminate between the true professional man, and the one devoid of the essential requisites that

characterize a well qualified practitioner, who calls to his aid all those fundamental principles and collateral branches which eminently qualify him for the discharge of his professional duties. To this end, he seeks the aid of physiology, which teaches him the functions of the different parts of the human system; of anatomy, which unfolds to him the situation, structure, and economy of the animal body; of pathology, which explains to him the nature of diseases, their causes and symptoms; of therapeutics, which guide him to those curative agents that assist nature in restoring health when attacked by disease. These, together with chemistry, mineralogy, metalurgy and other minor auxiliaries which are acquired by experience in manipulations, illuminates the mind thus disciplined, and its genial rays reflect upon other minds, and dispel the darkness which the empiric leaves in his train; and the public can readily distinguish between the man of science and the mere pretender, and will bestow patronage accordingly.

There is another class of dentists who do but little toward furthering our course, although they are good practitioners, profess strong powers of perception, can see defects still in the dental art that ought to be overcome, but are unwilling to incur the necessary expense and time that may be required to produce the desired results. They are unwilling to prosecute investigations in the dark labyrinth that lies before them, without the hope of reward. We trust the time is not far distant when acceptable provisions will be made by means of which this obstruction will be removed, and all others that tend to impede our progress. Let every one feel that he can do something, that there is yet room for him to make his mark, and then much will be accomplished. Bear in mind, that men's acts live after they shall have passed away, and may some lasting good result from the part we have taken in this life.

## A PATIENT'S OWN STORY ABOUT HIS TOOTH.

A PAPER READ BY B. W. FRANKLIN.

I had a Tooth that served me long,
And masticated good and strong;
By carelessness, or other cause,
It raised the devil in my jaws.
At first I thought I'd have it out,
But feared the pain and raved about;
Losing my rest both day and night,
And then I drank till I was *tight*.
I slept and dreamed, and in my sleep
Creation seemed all in a heap;

All things existing in the world
Upon my prostrate form was hurled,
My first impressions, vivid now,
Were mountains resting on my brow.
As if to change the horrid dreams,
Water came rushing o'er in streams.
The sense of suffocation dire
Was changed at length to burning fire,
Which scorched and crisped my body o'er,
With one continual smarting sore;
It seemed that ages passed away,—
One cheerless night without a ray
Of light, except the burning pile
Which glared, and fumed, and hissed the while;
Then by some change of nature's laws
The pain subsided in my jaws.
When once awake straightway I went—
To have it out was my intent.
The Dentist an inspection made,
And said, the practice of the trade
Was to destroy the nerve within,
And fill the tooth with gold or tin.
Extracting teeth, the Dentist said,
Was only practiced when they're dead.
Some quacks, 'tis true, would take them out,
But he could save the tooth no doubt.
The thought of saving this old friend
For future use, would make amend
For all the tortures I'd gone through—
The tooth once filled was good as new.
The operation would not harm
It always acted like a charm;
The price was of such small account—
Ten Dollars *only* in amount.
The thought of being free from pain,
No trouble with the tooth again,
Decided me the test to make
To save the tooth and stop the ache;
The Dentist seemed all right and fair,
Invited me to take the chair;
Which done, he then around me laid
His torturing instruments of trade.

He then began to punch and drill,
Each turn or move it seemed would kill.
To make the operation sure,
I thought the pain I would endure,
But when the *powder* he applied
I thought, my soul, I should have died;
Each hair seemed spikes with heated points
That darted pains through all my joints,
My body, soul—my very brain,
Seemed separating from the pain.
It can't last long, the Dentist said,—
Of course it can't, for I'll be dead.
Two hours of such a pain as this
Would make of purgatory bliss.
An hour or more was surely spent
In torturing pains, the most intent,
Before the nerve was fairly dead,
Or pain subsided in my head;
The Dentist then with broach and drill
Prepared the cavity to fill.
My tooth was filled with solid Gold—
It was the best, so I was told;
Some fill with Osteoplasta white,
Or with Amalgams plaster tight;
But gold, he said, would surely save
The tooth till I sunk in the grave;
The bill I paid—ten dollars down—
The tooth now had a solid crown;
And from the soreness which of late
Disabled me to masticate—
The thought of eating food again,
Free from that horrid, aching pain,
Quite reconciled my mind unto
The ordeal which I had gone through.
How transcient hope, expectance vain!
The tooth began to ache again.
This time a different kind of sore,
The tooth seemed longer than before,
It throbbed and jumped, and throbbed again,
I thought I should become insane—
The tooth, from inflammation great,
Had just begun to suppurate.

My friends advised to have it out
'Twas best, they said, there was no doubt;
Then to the Dentist's I repaired
I'd have it out I had declared.
The pain he said now in your jaw
Was the workings of a natural law,
Which left to work in its own way,
Would bring a cure without delay.
Such cases he had seen before,
That worked this way a day or more,
And then all pain was at an end;
'Twill be so now, my worthy friend.
This law, I could not understand,
The reason why I did not demand;
The tooth removed from out the socket
And placed within my empty pocket,
Which since the Dentist's aid he lent,
Was drained of every single cent.
I then resolved to try once more,
This aching tooth which now was sore;
But not as painful as before.
I homeward bent my weary way,
And lingered out a wretched day;
The night came on—the pain was deep,
Which banished all my thoughts of sleep.
The night was spent, the morning came,
The pain continued all the same.
My face now swelled up very large,
And ulcers ready to discharge.
The sockets loosened round the teeth,
The bones worked out from underneath;
My face one side, it all fell in,
From *compressor nasi* to the chin.
A horrid sight I now became,
Recognized only by my name;
Such transformation ne'er was seen
From sloughing ulcers or gangrene;
The Doctor who with leech and pill,
Had run up an enormous bill,
Which I had now to liquidate
By selling out my small estate.
My female friends who once I knew

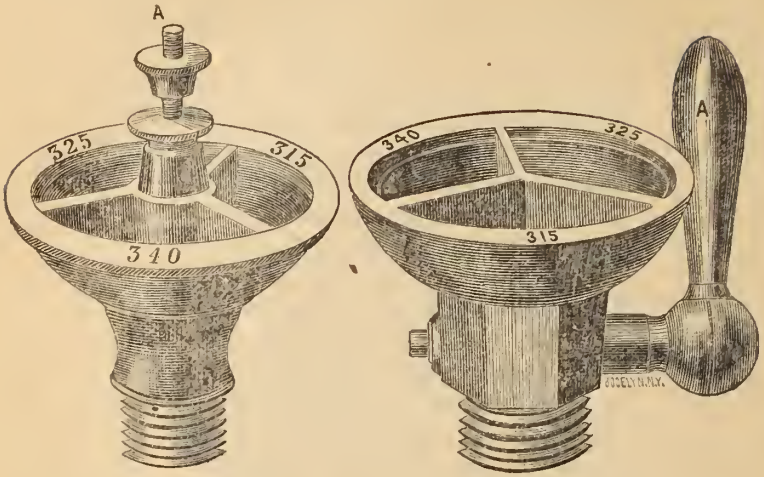
And thought sincere and kind and true,
Now turned with loathing from the sight;
And as they passed, said "What a fright!"
E'en life itself became a curse,
No fiend could e'er have wished it worse;
The very thought of what I was,
And made so sad from such a cause,
Nigh drove me on to end my life
With poison, bullet, or the knife;
I was not clear which way was best
And reasoned long, but feared the test;
It being a point on which you see
Those who ne'er tried it can agree.
The experiment once fairly tried,
Comparison is laid aside;
I doubted of this mode of dying,
And then gave up all thoughts of trying.
My face began to heal at last;
My strength improved so very fast.
One day when I was in the street
A gentleman I chanced to meet,
Who greeted me in friendly way,
And then went on without delay
To tell me, without charge or fee,
He'd give my face its symmetry.
The very thoughts new life impart,
And fill with joy my aching heart;
Say friend, tell me, is it true?
My face can look as good as new?
"Yes, better" was his quick reply.
"Science when taught by practiced eye,
Can e'en with nature's efforts vie."
I was in doubt, could not believe,
And yet the man would not deceive,
For in his face, his head, his eye,
Was written truth, and not a lie.
Come in, my friend, out of the sun
And tell me how this can be done.
He then began to me impart
The beauties of the dental art:
"Impressions first of all we take,
The casts get up and models make,

Which when all done it is to be
Of the true parts a simile.
These models moulded in the sand,
Manipulated with careful hand,
To bring out every curve and line;
Expression gives the face divine.
A platina plate is to be raised
And with a porcelain covering glazed;
When in its place must represent
The other side with true intent.
John Allen first did introduce
This method into general use.
Another impression then we take,
Of injured parts, so as to make
A hardened rubber plate to rest,
On tender parts, for 'tis the best;
Its plastic state so strong and light,
When moulded makes it firm and tight.
The two are fastened in their place
By bolts and bars, or spring and brace;
The space between we then can use
For any purpose that we choose,
And thus 'tis plain your face can be
Restored to use and harmony."
He ended here; this pleasing theme
Had banished all my gloomy dream.
Hope now revived this offer free,
To terms I could not disagree.
A month or more had passed away,
When on a sunny summer's day,
If you'd been there you might have seen
Me promenading on the green,
With beauty blooming at my arm
With rosy cheeks and virgin charm;
I pressed her gently to my heart,
A treasure gained by *Dental Art.*

## FRANKLIN'S FUSIBLE GAUGE.

NE PLUS ULTRA.

*Patent applied for.*




The principal difficulties heretofore experienced by the profession in manipulating the Vulcanite Base, has been found in the unreliability of the thermometers in common use. These instruments are all necessarily frail, and constantly liable to fracture from the expansion and contraction of the delicate glass tubes while in use, as well as in transhipment. The loss of time to the dentist, as well as the expense and delays of repairing thermometers, in very many cases have amounted to no inconsiderable sum, and caused serious and vexatious delays, besides the variation in thermometers of the best make amount to as much as 25 degrees, this has not only resulted in the loss of one or more cases of teeth, but has subjected the operator to loss of time in testing new, or repaired instruments, before being able to bring out the usual satisfactory results. We have expended much time and money in experimenting, and consulted many Steam Gauge makers, with a view to produce an instrument that would test the heat with sufficient accuracy for the vulcanization of dental preparations. Various suggestions and modifications of existing apparatus were made, but the expense of a reliable test was too great to warrant an attempt at their introduction to the profession. The consequence was for over two years past we have sold several thousand thermometers, most of which have been repaired many times and are constantly giving out, subjecting the parties to the annoyance above recited. We have at length produced a very simple, cheap, and *positively indestructible* instrument which we have

practically tested in our Laboratory for over six months, not having used a thermometer in that time, and have produced more uniform and satisfactory results than was attainable with ordinary thermometers. There can be no doubt that this improvement in this indispensable instrument is the most important one ever made in the vulcanizing apparatus.

The above cuts faithfully represent our "Fusible Gauge," and which from its reliability must necessarily supersede all the thermometers now in use.

Explanation.—The cup of our "Fusible Gauge," as seen in the cuts are made of brass and divided into three compartments, below which is a faucet or blow-off at A, cut 1. Cut 2 letter A, is a safety valve and blow-off, these Gauges are attached to the Heater in place of the ordinary thermometer, by means of the screw, and are adapted to every description of heaters in the market.

The compartments marked 315, 325 and 340, each contain an alloy of metals fusing at different degrees of heat, including a range from 295 to 360 degrees.

Description.—The upper nut when screwed down, raises the valve and allows the steam to escape. The middle one regulates the pressure on the spring increasing or diminishing it at pleasure. The lower one is simply a *set nut* which when screwed down prevents any change in the action of the safety valve.

Directions for Use.—When the alloy in the compartments marked 315 has become *granular* the temperature in the Vulcanizer is 295 degrees; as it changes from the *granular* to a *mushy* condition, the heat has increased to 310 degrees, and when it has become *fluid* the heat has increased to 320 degrees, which is fully demonstrated by a comparison with the best Standard Thermometers and Steam Gauges.

The alloy in the compartment marked 325 begins to be *granular* at 320 degrees, and in that condition a pointed instrument can be forced into the centre of the alloy, while the outer portion remains firm. This is the *true vulcanizing heat.* This alloy loses its granular condition and becomes *mushy* at 330 degrees, and when *fluid* the temperature of the vulcanizer is 340 degrees.

The alloy in the compartment marked 340 is of little practical value except to indicate an extreme degree of heat. It is slightly *granular* at 340 and fluid at 360 degrees.

Remarks.—It is confidently believed from the constant use of these "gauges" for over six months, that no change in the fusibility of these alloys can take place, for only one of them ever becomes fluid in the heat required for ordinary vulcanization. The best authority on the various metals and their alloy, inform us that oxyda-

tion of metals cannot take place at their melting point. We have not been able to discover any change in the fusibility of these alloys after six months daily use, and we confidently anticipate that the profession will recognize this great improvement as being among the most valuable of the many that have aided them in their arduous labors, and by its introduction they will no longer be subjected to vexatious delays, and pecuniary losses in consequence of their thermometers "giving out."

Parties ordering these "Gauges," will be particular to specify with what style and make of heater they are to be used.

Price, $300.

Address, B. W. FRANKLIN, No. 73 Bleecker St., N. Y.

Agent for the sale of Office Rights, Apparatus, and materials used under the Goodyear Patents for the Vulcanite Base for Artificial Teeth.

FRANKLIN'S SPRING CLAMP.

THIS Clamp, as seen in the cut, is a simple steel spring bent around the flask, the ends overlapping each other, and sufficiently large to admit a thin ring to stand perpendicular between the flask and the spring.

The ring A is made half an inch or more wide on one side, growing gradually narrow on the other, as seen in the cut. When the ring stands perpendicular there is no pressure on the flask, but when turned down as seen in the cut, one edge of the ring presses against the flask, the other against the spring, and pressure is produced. Any degree of pressure may be produced by turning the wide part of the ring down, and forcing it into the position as seen in the cut.

Much time is gained over the old method of heating the flask to bring the parts together, as with the constant pressure exerted by this

Spring Clamp, the flask (after the case is packed) may be placed into the heater, and before the heat is up to a vulcanizing point, the flask is bound to come together. The force exerted is so gradual and uniform that there is less danger of displacing the teeth or injuring the model, and no possibility of changing the articulation by means of the flask not coming together. Any blacksmith can make these spring clamps; if made from good steel no temper is required, and they can be adapted to every description of flask.

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NOTICE.—The undersigned appointed a Committee by the American Dental Convention at New Haven, at its session in August, 1861, to correspond with the government in regard to so modifying the Medical service in the United States *army* and *navy*, as to admit Surgeon Dentists into the department, will be glad to receive any information or suggestions relative thereto from members of the Medical or Dental professions, or others who may feel an interest in this important movement for the benefit of our volunteers, and others engaged in the defence of our common Country, its Constitution, and Laws.

Dr. W. H. ATKINSON, Cleveland, O.,
" Geo. H. PERINE, New York City,
" B. W. FRANKLIN, " " " } *Committee.*
" J. D. WHITE, Philadelphia, Pa.,
" I. J WETHERBEE, Boston, Mass.

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NORWALK, CONN., *July 25th*, 1861.

DR. B. W. FRANKLIN,—*Dear Sir*,—In reply to your note of July 18th, asking my opinion of the merits of the Vulcanite Base, as compared with gold, &c., I would state that I have used it quite extensively for the past five years. The first upper set (I find by referring to my register) was put in five years ago, September 20th. I have seen Mrs. ———, for whom it was made, within a few days, and find the case as good as when first inserted. I have, in five instances (that I now call to mind), inserted teeth on the Vulcanite Base for patients who had for years worn gold plates, four of whom assured me that they were far more comfortable in the mouth than gold, and that nothing could induce them to again wear metallic plates. I am at present using it in most cases, should say forty-five out of fifty, at least, for full jaws. For partial sets I have, until the past year, used it but little. The more I use it the better I like it. I find the per centage of breakage much less than on gold or continuous work. I have no hesitation in saying, that if *properly made*, it will (at least) wear as long as any substance used for plates.

Truly yours, JAS. G. BARBOUR.

Those having little experience in the Vulcanite base we take great pleasure in referring to the following list of licensees of the American Hard Rubber Co.

Many other members of the profession in all parts of the country have patronized our Agency, (No. 73 Bleeker Street,) by sending their cases to us to be vulcanized, etc., numbering in all over 1,400 sets of teeth, within the last year, which have been put up in our laboratory in this city. We question if any other style of work has attained to so great a popularity in this or any other country.

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" Rodrigues, B. A., Charleston, S. C.
" Robinson, S. M., Watertown, N. Y.
" Rogers, L. W., Utica, N. Y.
" Robinson, B. F., Cleveland, O.
" Rawson, J. B., Jamestown, N. Y.
" Richardson, Jos., Cincinnati, O.
" Robinson, J. A., Jackson, Mich.
" Russell, R., Nashville, Tenn.
" Rice, A., Spencerport, N. Y.
" Reynolds, R. G., Waterbury, Conn.
" Ryder, W. E., Tuscaloosa, Ala.
" Rogers, J. W., Rochester, N. Y.
" Requa, J., Rochester, N. Y.
" Ramsay, J., Springfield, O.
" Rose, B. A., Urbana, O.
" Ross, N. D., Troy, N. Y.
" Roberts, W. H., Richmond, Va.

Dr. Roberts, Spencer, Philadelphia, Pa.
" Reese, G. W., Columbus, Ga.
" Roberts & Gregg, Columbia, S. C.

" Searle, F., Springfield, Mass.
" Sumner, C. G., Norwich, N. Y.
" Swartly & Shult, Pennsburgh, Pa.
" Snow, R. G., Buffalo, N. Y.
" Smith, D. D. & A. T., Syracuse, N. Y.
" Spencer & Simmons, Providence, R. I.
" Salmon, E., Lima, N. Y.
" Smedley, A. P., Media, Pa.
" Sylvester & Jameson, Lyons, N. Y.
" Strickland, B., Cleveland, O.
" Spencer, Geo. W., Pittsburgh, Pa.
" Steinburg, David, New York City.
" Smyth, Job, Hallsport, N. Y.
" Small, M. W., Woonsocket, R. I.
" Shattuck, W. H., Janesville, Wis.
" Scroggs, J. A., Galena, Ill.
" Siddall, J. F., Oberlin, O.
" Spalding, C. W., St. Louis, Mo.
" Sohn, E. C., Galesborough, Ill.
" Shower, E., Nashville, Tenn.
" Smith, J., Dover, N. H.
" Smith, B. F., New Orleans, La.
" Seger, H., Montgomery, Ala.
" Scranton, J. N., Bennington, Vt.
" Stinson, Wm. H., Baltimore, Md.
" Skinner, E. M., Syracuse, N. Y.
" Smith, A. S., Oswego, "
" Scott, Quincy A., Pittsburgh, Pa.
" Stoddard, Wm. F., New London, Conn.
" Simmonds, J. L., Boston, Mass.
" Saunders, A. A., Cherry Valley, N. Y.
" Schuyler, J. E., Hudson, N. Y.
" Stebbins, N., Pittsburgh, Pa.
" Scott, R., Greensboro', N. C.
" Scott, H. R., Franklin, N. Y.
" Stevens, N., Batavia, N. Y.
" Sweet & Easton, Pontiac, Ill.
" Shirley & Retter, Jacksonville, Ill.

" Thompson, C. A., Westfield, N. Y.
" Terry, Alfred, Norwalk, O.
" Taylor, Jas., Cincinnati, O.
" Todd, A. W., Montgomery, Ala.
" Tewksbury, H. L., Mount Morris, N. Y.
" Tripp, Geo. W., Auburn, N. Y.
" Tower, H. T., Lyons, "
" Truesdell & Creighton, Elgin, Ill.
" Trapp, J., Williamsport, Pa.

Dr. Van Vleck, Wm. B., Hudson, N.Y.
" Van Vleck, V., Hamilton, N. Y.
" Vinal, G. A. W., Andover, Mass.

" Wright, S., Homer, N. Y.
" Wright, W. F., Pittsburgh, Pa.
" Wanzer, H. C., Rochester, N. Y.
" Westlake, A. W., Rahway, N. J.
" White, Thos. A., Detroit, Mich.
" Whitney, B. F., Buffalo, N. Y.
" Westcott, A., Syracuse, N. Y.
" Wilson, E. F., Rochester, N. Y.
" Walters, L. D., Lockport, N. Y.
" Whiting & Benedict, Detroit, Mich.
" Watt, Geo., Xenia, O.

Dr. Wadsworth, H. N., Washington, D. C.
" Wayt, J. H., Charlotte, N. C.
" Wilkinson, A. L., Huntsville, Ala.
" Ward, S. L. & W. G., Lowell, Mass.
" White, H. R., Utica, N. Y.
" Wheeler, W. H., Baltimore, Md.
" Way, L. E., Lee, Mass.
" Williams, M. W., Honesdale, Pa.
" Wood, B., Nashville, Tenn.
" Woodruff, U., Canandaigua, N. Y.
" Wilson, E. T. & Son, Boston, Mass.
" White & Weller, Durham, N. Y.

" Young, A. J., Dover, N. H.

## ADDITIONS.

Dr. Ambler, R. T., Williamsburgh, L. I.
" Avery, Otis, Honesdale, Pa.

" Barcroft, A., Elderton, Pa.
" Bartlett, D. S. Roxbury, Mass.
" Bowdoin, W. L., Salem, Mass.
" Byram, E. P., Cooperstown, N. Y.

" Currier, Geo. H., Salem, Mass.
" Coe, H. A., Theresa, N. Y.

" Dunnavant, W. C., Baltimore, Md.

" Eakert, J. K. Oswego, N. Y.
" Ellis, D. C., Belvidere, Ill.

" Feeman, J., Somerset, O.
" Fellers, E., Grass Valley, Cal.
" Foote, Wm. S., Belvidere, Ill.

" Groshon, A. E. & Son, Washington, D. C.

" Hawes, Elmer, Manchester, Mich.
" Herrbold, John, Jacksonville, Oregon.
" Hale, Nathan G., Windsor, Vt.
" Hill, A., Norwalk, Conn.
" Hitchcock, D. K., Boston, Mass.

Dr. Levason, Lewis, Nevada, Cal.
" Little, J. W., Concord, N. H.

" Miller, Seth P., Worcester, Mass.

" Neall, S. W., Camden, N. J.

Ohio College of Dental Surgery, Cincinnati, O.

" Parker, Lewis, Potsdam, N. Y.
" Parmly, E. P., St. Peters, Min.
Pennsylvania College of Dental Surgery, Philadelphia, Pa.

" Reynolds & Reynolds, Columbia, S. C.
" Rising, C. B., Rockford, Ill.
" Randolph, A. M., Northville, Mich.

" Stratton & Walker, Keen, N. H.
" Shepherd, S. M., Petersburgh, Va.
" Stark, F. G., Lexington Miss.
" Sherwood, V., Rondout, N. Y.

" Tully, A. W., Petersburgh, Va.

" Ward, J. B., Hickman, Ky.
" Whitney, Geo. R., North Bridgewater, Mass.
" White, Geo. H., New York City.

# EDITORIAL.

The Seventh Annual Session of the American Dental Convention, as will be seen by reference to our report of its doings in another part of this number was more fully attended, and a much deeper interest manifested, than the most sanguine friends of the convention system could have reasonably expected.

The National troubles, which have absorbed so much public attention for the past few months, together with the almost entire suspension of business, operated unfavorably for a large gathering at New Haven. Notwithstanding these causes, and the fact that the officers of the convention had up to a late date concluded to let the meeting go over till 1862, and consequently inadequate notice was given. Many of those even who were in attendance had supposed till within a few days of the time of meeting, that it was to be laid over for one year. Under all these circumstances, it seemed almost certain that the New Haven meeting would be a failure. But the good spirits ordered it otherwise; the numbers in regular attendance being equal if not greater than at any previous meeting. Every one seemed to feel that he had come to attend the convention, and was resolved that pleasure or business should not prevent him from doing so. We have never attended a convocation of dentists that exhibited such earnestness to communicate practical experience, or that developed more light on important subjects connected with the practice of our profession. We think all young practitioners, especially, would find it to their great advantage to attend the meetings of the American Dental Convention. In the few days of the annual session of this convention they may learn what has cost the older members years of experiment, disappointment, and no little loss in time and money to acquire, and it seems the more strange that these do not avail themselves of this opportunity for acquiring knowledge, when it is so apparent that they need the information so freely offered. Many excuse themselves from attending these meetings on the ground that the Dental Journals furnish the reports of the doings of the Convention, and they flatter themselves that in this way they get all the information they could do by attending, and at a less expense to themselves. There was never a greater mistake; our journals give only the letter—the spirit is wanting; besides, if all could be learned through the dental journals, if every dentist should adopt this same miserable, selfish course, our profession would soon return to that ignorance from which through conventions and other instrumentalities, it has so recently emerged. We hope the fires kindled upon our altars will continue to burn, increasing in brightness, till it shall make the darkness palpably visible to those who now sit in its shadows with so much seeming complacency.

The place selected for the next annual meeting of the Convention, is another evidence of the advanced position occupied by the majority of the members at

New Haven. They leave their homes and its cares to be benefited; "business first and pleasure afterwards," is an old saying; a trip to Trenton Falls will pay any one for his trouble at any season of the year, but in the oppressive heat of our August sun, there perhaps is no more available place in the United States or one possessing as many advantages for recuperation; elevated as it is nearly 2000 feet above tide water, with scenery which in beauty, variety, and delicacy of outline surpasses any other place we have ever seen. The "Falls," though not as grand as Niagara, are every way more pleasing to the eye, and the scenery more varied and enchanting. The graceful windings of the West Canada Creek, which has worn its way in some places through mountains of lime-stone rocks to the depth of 300 feet, here and there finding a denser strata which it seems to have struggled hard to prevent the disintegration making such inroads above and below, baring their polished bosoms in sullen defiance of the joyous, dancing and sparkling waters incessantly laboring to annihilate all obstacles to its more peacable and quiet journeyings to the great reservoir. Those of the profession coming from the east having a taste for rural scenery, would be delighted with a trip in a carriage from Herkimer to the Falls, a distance of some twenty miles by plank roads. Leaving the railroad depot at Herkimer you enter the valley of the West Canada Creek. The Creek winds along in graceful curves resembling a huge silver-colored anaconda, who making its way along through clumps of trees, or half concealing its body behind massive rocks and mountains, which entirely hides it from view for a time, and then again exposing its beautiful form for miles in the distance. The plank road is sometimes on one side and then on the other of this beautiful stream. There are many little villages along the road, and the country for many miles on either side of the Creek is dotted with handsome farm houses, and farms, under high cultivation. The more direct route by railroad is to Utica, and thence by cars to Trenton Falls. This route embraces a view of the Valley of the world-renowned "Mohawk," where in the Revolutionary war our noble sires encountered the Savage Indian and more savage and desperate Tories and British. In reaching Utica from the south-west and west you pass through Buffalo, Niagara Falls, Rochester, Syracuse, and many other cities and towns of more or less note. Altogether we are pleased with the idea of visiting once more the place of all others we most desire to see, "Trenton Falls."

## SPONGY VULCANITE.

Within the past year, many cases of the Vulcanite Base have been spoiled by the work being porous under the surface. The cause of this condition for a time was a mystery. Experiments however fully demonstrate that the increased degree of heat, and the short time employed in vulcanizing has been the cause of the trouble so much complained of since the reduction of time, from three hours to less than one half that time. During the two or three first years of the use of this substance, it was thought by some, that three to five and even as long as eight hours was required in vulcanizing, to produce the best results. Much of the rubber goods at the present time require eleven hours for proper vulcanization.

From our correspondents, and from important facts gathered from those who

have used the Vulcanite the longest, and particularly those who have vulcanized their work at 310 degrees, we learn that when this degree of heat is employed that they have never lost a case, or had any defect in the work; the color is much lighter and the vulcanite has greater elasticity, and is in every important respect better. We deem this matter of sufficient importance to justify those of our Licensees who have experienced the difficulties above mentioned, to try the experiment of a few cases at a lower temperature and a longer time. Experienced workmen in the rubber works are unanimous in the opinion, that a too quick heat hardens the outer surface of the gum, while the inside is still soft. The outside crust of hardened vulcanite prevents the escape of the gases, and the expansion of these gases produce a spongy condition of the internal mass.

This explanation is undoubtedly a correct one, for it has been very difficult indeed, if not impossible, to vulcanize large masses of rubber so as to produce a uniform solid mass to the centre. We repeat that we would advise those who may have experienced any difficulty from spongy, porous work, to take more time at a lower degree of heat. The little difference of an hour is of small consequence compared to the occasional loss of a case; besides the work is stronger and the color less dark.

N. B.—Be sure you use pure rubber; there are large quantities in the market that is entirely worthless, which has been gotten up by unscrupulous parties to make money out of, and is sold by dealers to destroy confidence in the Vulcanite Base, which is reducing their sales of gold, silver, platina, and solders, the profits of which heretofore has been an important item with dealers in dental goods, and hence their opposition.

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"The War for the Union," has absorbed the attention of the legal fraternity to such an extent as to add to the dilatory action of the courts. We had hoped by this time to be in possession of the decision of the judges in some one of the cases now pending against infringers of the Goodyear Patents, for the manufacture of the Hard compounds of India Rubber, and other vulcanizable gums, but we have been disappointed. Before our next issue however, we fully expect decisions sustaining the said patents.

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In consequence of our lengthy report of the doings of the American Dental Convention at New Haven, we are compelled to put over other important matters, including several communications, which will appear in our next.

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## SELECTING TEETH.

In the selection of teeth for artificial dentures, a careful study of the temperament of the patient should be observed, in order that the shade, form, and position of the teeth shall harmonize with the rest of the features, which make up the individuality of each particular character. Not only should our study extend to the external peculiarities of the face, but to the general temperament and physiological and phrenological developments, and their blendings and consequent modifications.

When the nervous temperament predominates to any great extent, all the

tissues of the body will be found to be delicate and pointed,—or perhaps, sharpened, would be a more expressive term,—fineness of the hair, and a thin delicate skin, and generally a light complexion, but not always. Teeth selected for such a temperament would require, as a general rule, to be of a light bluish shade, rather slim and narrow, and so arranged as to give an earnest, nervous expression to the mouth, indicating quickness of motion, and active intellectuality. If the patient had grey eyes, high forehead, and great breadth above the ears, such a person would be liable to paralysis and disease of the brain, from over exertion or general physical derangements. The teeth in such a patient's mouth are very liable to early decay and loss, not from their delicate structure as is generally supposed, but from the almost constant acid reaction of the secretions of the salivary and mucous glands.

We have another kind of temperament, which is known by its equally distinctive peculiarities, not only of the teeth themselves, but by the whole glandular and other tissues of the body. It is what I choose to call a nutritive temperament, and may be known by large lungs, broad chest and abdomen, and general fleshiness of the whole body, loud, dry and muffled voice, a lover of good living, with general moisture of body, and a high temperature of animal heat, with strong digestive powers, fulness of the lower part of the cheeks, slow, indolent movements, and great lassitude; such a patient is liable to congestive inflammation, especially of the lungs, rupturing of the blood vessels, &c. The salivary secretions in such a patient's mouth, in a healthy subject, is usually alkaline, and the teeth under ordinary circumstances are little liable to caries. When, however, artificial dentures are required, a very different selection of teeth will have to be made from the one just mentioned, in order to meet the requirements of this case. The teeth generally will require to be yellow, rather short and broad, their position expressive of an easy, sleepy, listless, and inactive disposition. Another kind of temperament often met with, is a robust temperament; this is indicated by hard and coarse features, large limbs, dark skin and hair. This temperament is capable of great physical endurance, opacity of the teeth and nails, high cheek bones, &c. Such subjects are liable to ossification of the vessels of the heart, dropsy of the extremities, sense of heaviness in the limbs, &c., they require large prominent teeth, dark opaque in color, irregular in position, giving an expression of solidity and fineness, and determination of purpose. These constitute the most striking features as seen in individuals of marked physiological peculiarity of temperament, and require less discrimination on the part of the mechanical dentist to select and arrange teeth, and adapt artificial dentures so as to meet all the requirements of these severally marked temperaments, than is required when these temperaments are more or less blended in one individual. It then requires a positive knowledge of physiology, physiognomy, and phrenology, in order to enable us to blend our work so as to harmonize as a whole. Every part of the face aids in making up individuality, and individuality may be marred or destroyed by a badly selected and improperly arranged set of artificial teeth.

(*To be continued.*)

# BUSINESS NOTICE.

## THE VULCANITE DENTAL AGENCY AND DENTAL DEPOT.

No. 73 BLEECKER STREET, NEW YORK.

Our Agency is removed to the large building, No. 73 Bleeeker Street, first door from the Manhattan Savings Bank, corner of Bleecker Street and Broadway, New York.

The eonstantly increasing business of this Agency and the large number of orders we are daily receiving from all parts of the country, for every deseription of dental goods, have determined us to open a Depot in connection with the general business of the Ageney, at which place the profession can be furnished with everything required in the praetice of dentistry. Our arrangements with manufacturers are such as to enable us to furnish every article required by the profession at the manufacturs' lowest cash priees. We shall offer all kinds of dental goods to eash eustomers at a discount from priees heretofore paid by them. We intend to keep the best seleeted assortment of Teeth (adapted to all the different styles of work) that was ever offered for sale at any one Depot in the country, eomprising all the best makers' Teeth, viz: Porter's, Jones & White's, Mintzer & Co.'s, Jenness & Rubeneame's, Oram & Armstrong's, Stoekton's, Kerring's, and Eecleston's, making an assortment to select from not to be found at any other establishment in this city.

We are prepared to furnish Operating Chairs and Office Furniture, Laboratory Tools, Apparatus and Machinery, Rolling Mills, Forges, Furnaees, and Lathes, and in fact everything required by the dentist, ineluding the largest and best assortment of Vulcanizers to be found at any other establishment. Our terms are cash. We are willing to divide the profits in the start with paying customers; *others we do not want.*

Those ordering goods to be forwarded by Express, to save expense of collecting and large discounts, will send us a draft on New York, or other current funds, in amount sufficient to cover the bill of goods ordered, and any balance over will be returned in specie with the paekage. We are compelled to this course from the fact, that the discounts in this city are in many eases, more than double to what the exchange would be on money at the place where the Dentist resides, and where their money is at par. Any Dentist residing at a distanee from the city ordering five sets of teeth at a time will be allowed a diseount of five per cent. from the lowest cash price that the same teeth can be bought for at any other plaee in the city. In addition to the five per cent., we will send to his address Twenty sets of teeth from which he can make seleetions; we will pay the express charges both ways, thus giving our customers at a distanee every advantage that the City Dentists enjoy. Every article sold by us not answering the description, will be taken back without expense to the purchaser.

Address B. W. FRANKLIN, Agent,
No. 73 Bleecker Street, New York.

A limited number of advertisements will be inserted in the Vulcanite at the following rates:

| | | | |
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| One page, one year, . . | $20 00 | One page, one insertion, . | $8 00 |
| Half page, . . . . | 12 00 | Half page, . . . . | 5 00 |
| Quarter page, . . . | 7 00 | Quarter page, . . . . | 3 00 |

Address "VULCANITE," No. 73 Bleecker St., N. Y.

## BOOKS RECEIVED.

The "Dental Register of the West." Edited by J. Taft and Geo. Watt. J. T. Toland, publisher and proprietor, Cincinnati, O. Monthly, at $3 00 per annum in advance.

The "Dental Cosmos." Edited by J. D. White, J. H. McQuillen, and Geo. S. Ziegler. Jones & White, publishers, Philadelphia, Pa. Monthly, $2 50 per annum in advance.

"The Southern Dental Examiner." Edited by J. P. H. Brown and Geo. J. Fouke. Brown and Hape, publishers and proprietors, Atlanta, Ga. Monthly, $1 00 per annum in advance.

"Cincinnati Dental Lamp." Edited by J. M. Brown, Cincinnati, O. Quarterly, 25 cts. per annum in advance.

The "American Dental Review." Published by A. M. Leslie, St. Louis, Mo. Quarterly, $1 00 per annum in advance.

The "Dental Enterprise." Edited by H. Snowden, Baltimore, Md. Monthly, 50 cts. per annum in advance.

"Revue Odontotechnique." Edited by T. R. Hammond, Paris, France.

"L'Art Dentaire." Edited by A. Preterre, Paris, France. Monthly, $5 00 per annum.

We would advise every dentist in the United States to subscribe for one or more of the above journals. Parties sending to us for dental goods can enclose the price of subscription, and we will have either of the above-named journals forwarded as per order. Try them—it would be a paying investment; better than money at interest. Dividends declared quarterly and monthly are paying institutions. *We repeat*, try them and see.

TO MANUFACTURERS OF

MINERAL TEETH

AND

DENTAL MATERIALS.

A Gentleman (an Englishman), well and favorably known in the Dental Profession throughout Great Britain, having represented a London House for seven years, in the capacity of Traveller, desires, on commencing business on his own account, to treat with a first-class American manufactory, to supply him with teeth and every material required by the profession.

Communications with full particulars as to terms, etc., addresed to B. W. Franklin, 73 Bleecker Street, will receive prompt attention. References given and required.

# THE VULCANITE.

**Vol. II.** **NOVEMBER, 1861.** **No. 3.**

## TO THE DENTAL PROFESSION.

We publish in this number the decree of the Circuit Court of the United States for the Southern District of Ohio, in the case of Goodyear *vs.* Toland.

Our readers will recollect that in the February number of the Vulcanite we stated that the demurrer made by Mr. Toland to the bill of complaint in that case had been argued and overruled; that thereupon his counsel had moved to strike out a part of the bill as irrelevant, and that this motion could not be argued until the fall term of the court. At that term the motion was denied, and Mr. Toland peremptorily ordered by the court to file an answer to the bill by a specified day. This he failed to do, and the annexed decree was entered upon the record of the court:

HENRY B. GOODYEAR, ADM'R, ETC., *vs.* JOHN T. TOLAND. } *In Chancery.*

And now comes the said plaintiff, and it appearing to the Court that the said defendant, though ruled so to do, hath failed so to answer the said Bill of Complaint, the same is by the Court here ordered to be taken as confessed. And, therefore, the Court do find that the said two letters patent referred to in said Bill, being reissued patents Nos. 556 and 557 were duly granted and issued to said plaintiff as administrator of said Nelson Goodyear deceased, and that the same were and are in all respects valid, and secure to said plaintiff as such administrator, the exclusive right of making, constructing, using, and vending to others to be used, the said improvements specified in said letters patent for the unexpired term of fourteen years, from the 6th of May, 1851. And the Court doth further find, that the said defendant has been engaged in manufacturing and selling large quantities of plates and bases for artificial teeth, and other articles made of the new substance described and secured by said letters patent, in violation of said exclusive right so

secured to the plaintiff as aforesaid, and without the license or authority of the plaintiff. Whereupon, it is by the Court here ordered and decreed that the said defendant be, and he is hereby enjoined and forbidden from henceforth, during the continuance of said letters patent, and during the term thereof yet unexpired, or any further term for which the same may be renewed or extended, from continuing the manufacture or sale of plates and gums for artificial teeth or other articles so made in violation of the said patents or either of them, and that the defendant pay the costs of this suit. And in as much as the Court is not now advised of the amount of damages which should be decreed to be paid by said defendant to the plaintiff on account of the said infringements and violations of the said patents, it is ordered that this case be referred to Thomas M. James, as Special Master, to state and return to this Court an account thereof, and this case is for that purpose further continued, and the said Special Master is authorized to call before him and examine under oath the said defendant, and such other witnesses as may be necessary in order to establish the extent of said damages.

United States of America, Southern District of Ohio, *ss.*

I, John McLean, Clerk of the Circuit Court of the United States, within and for the Seventh Circuit and Southern District of Ohio, do hereby certify the foregoing to be a true and accurate copy of a Decree in Chancery in the case of Henry B. Goodyear, adm'r., etc., *vs.* John T. Toland, rendered on the 11th day of September, A. D. 1861, as the same remains upon the Journal of said Court in my office.

In testimony whereof I have hereunto set my hand and affixed the seal of said Court at Cincinnati, this 25th day [L. S.] of September, A. D. 1861, and in the 86th year of the independence of the United Sates of America.

Attest: JOHN McLEAN, *Clerk, etc.*

In view of the self-assured and even defiant tone maintained by Mr. Toland throughout his warfare upon us and the Goodyear patents, and of his oft-repeated assurances that he "could be neither bought nor frightened, but should defend the suit against him to the utmost limit of the law upon principles of duty and hatred to oppression." We think he has played upon us and the profession generally a most shabby trick. The course he has taken confirms us in the opinion that *he never from the first intended to defend the suit*, and that his whole conduct in connection with the use of Vulcanite has been influenced solely by the consideration of making the *largest possible profits on his trade*, regardless of the rights of others, and reckless of the perplexities and pecuniary difficulties in which he might involve his patrons.

We know this is a serious charge to bring against any man, but we believe the record of the past fully justifies us in making it. In the Nov. 1860 Number of the VULCANITE we exposed the duplicity of his course, and showed that up to January of that year he had spoken favorably of the use of Vulcanite for dental purposes, had acknowledged the rights of Mr. Goodyear to his patents, had advised the owners of the patents to make such arrangements as would give the profession in all parts of the country the privilege of enjoying their use, stated in his comments on the suit against Roberts then in progress, for the use of *Coralite*, that there was no essential difference between India Rubber and Gutta Percha, expressed the opinion that the decision against Roberts would bring the indiscriminate use of the vulcanizing process to a check, and advised "*all who would wish to avoid difficulty to respect the rights of others.*" We showed also that at the time above referred to, (January 1860,) Mr. Toland was appointed the "Western Agent" for a bogus material called Amber Base, which, purporting to be an entirely different material from the Goodyear compound, contained all its essential elements mixed with some other material, and which, when vulcanized, was *a clear infringement of the Goodyear patent.* We showed also that simultaneously with the appointment of Mr. Toland as that Agent, his whole tone in regard to the value of Vulcanite base, and also as to the validity of the Goodyear patents, underwent an entire change, and that from that time he had not ceased to pervert the high position occupied by him as the publisher of an influential dental journal to the most selfish purposes. Accordingly we find the columns of the *Dental Register* from that day forward filled with the vilest epithets, and the grossest charges of corruption against those who stood in the way of his self-interest. The Goodyear patents suddenly became filled with "barbed hooks," and were denounced as "piratical humbugs," while those employed by the owners of them were advertised in his columns as "threatening, bullying, humbugging, blackmailing agents."

The judgment and injunction obtained by us against Mr. Roberts smelt "fishy," and the eye-sight of Mr. Toland, sharpened by visions of sales of *Amber Base at* $14.00 *per pound*, discovers "a nigger in the woodpile." The new system of tactics thus inaugurated in January, continued throughout the year, and even became more and more *spirited.* In the course of time, Dr. Dieffenbach, against whom we had brought a suit for the violation of our patents, seeing the folly of contending against them, gracefully acknowledged their validity and informed his customers that *Amber Base could not be vulcanized without the violation of the Goodyear patents.* (See VULCANITE for May, 1860.) It is unnecessary for us to repeat here the tirade of abuse poured upon the head of Dr. Dieffenbach by Mr. Toland at this announcement. Insinuations of bribery in the settlement were mixed up with still grosser charges

of private corruption, and Dr. Dieffenbach might have been utterly annihilated had *he* alone received the full measure of Mr. Toland's wrath. Fortunately, however, for him, Roberts came in for a share of his ire. His comments on the course of this last named individual will awaken some curious reflections in the minds of Mr. Toland's friends. We quote from them at large: "What has sealed the lips of him whose nimble tongue was ever ready to rail against the A. H. R. Co.? Shall we never hear his gentle voice again? Is it to be forever hushed in *golden* silence?

"'Speech is silvern, silence is golden;
Speech is human, silence is divine.'

"Both parties seem to have *fallen* into sympathy with the Irishman who declared that he '*never* really *loved* a man until after he had had a *fight* with him.' I cannot see what Roberts had to gain by ceasing to defend the case, nor do I believe that he would have been beaten; but even if he should, it would cost only a trifling few hundred dollars more for witness and court fees, and what is that in a contest on *principle?* It would at least have proven to his brethren that he was *in earnest.* The eyes of the entire profession were upon him, and the most of them had confidently hoped that in Roberts they had a champion who, when he 'put his hand to the plough would not turn back.' '*Alas, how frail are human calculations!*' An honorable member of a liberal profession should be willing, on all proper occasions, to sacrifice self-interest for the protection of that profession, and the vindication of a professional principle; but

'He who fights, and runs away,
May live to fight another day.'"

The article in the June number of the Register from which the above extracts were made, is the last extended notice vouchsafed by Mr. Toland to his former friends and allies. In addition to his efforts to drive out the sale of our compound, and prevent the sale of license by declaring *that other compounds could be used without the purchase of a license*, he attempted to destroy confidence in our material, by advertising it as an inferior article, which he would vulcanize at a less price than other gums. Having obtained proof of his infringements on the Goodyear Patent, we soon after commenced a suit against him. In doing this, we were influenced mainly by two considerations: First, Mr. Toland was extensively known, and perhaps exerted as great an influence in the profession as any man, particularly in the West, and we felt that a decision against *him* would have great weight with the profession. Secondly, we had confidence in Mr. Toland's pecuniary ability

to defend a suit, and hoped, from the bold tone assumed by him in regard to such defense, that he would "endure unto the end."

That our readers may judge what ground we had for such confidence, we quote from the Register of June, 1860:

"I have received intimations from various parties, agents of the American Hard Rubber Company and others; and I have been directly threatened, too, with prosecution. Strenuous efforts have been made to intimidate me, and that in a manner to affect my business. The annoyanee, to say the least, has become too aggravating to be quietly tolerated much longer; and if this business is not stopped, and that suddenly, I may myself be tempted to try what virtue there is in law.

"Must I be bullied, browbeaten, threatened, and misrepresented by these hungry wolves, and have no redress?

"Some friends have asked whether I have *weighed* the expense. Have I not Franklin's treatise on the strength of metals and other materials which are ascertained by weight? Then why should I be at any loss? *But, cost what it may, I know my rights, and, knowing, dare maintain them.*" (And again.)

"I am not aware that I have infringed the rights of the Ameriean Hard Rubber Company, or any other legal patent; but if they think otherwise, and think it their interest, and think they can sustain an action against me, why not proceed at once? Why these repeated threats? I am a peaceable and peace-loving citizen, but would much prefer to have the suit commenced than this annoyance of attempted intimidation.

"Some have said, 'Toland is not doing right in opposing this thing.' I have only opposed it so far as it has undertaken to assume rights which the recorded specifications do not grant to them; *but because others have not the moral courage to vindicate a principle against a wealthy monopoly*, they have no right to censure me. Time will determine which is right. I occupy now the same position as heretofore, and, *on principle*, will defend it."

With these assurances, and others of a similar character, we commenced a suit against Mr. Toland, sending a special agent to Cincinnati to make the preliminary arrangements for the trial, and employing the best counsel we could in the ease. The remainder of the story has been told in the commencement of this article. We ought to mention, however, that since the commencement of the suit, up to the date of his last appearance as publisher of the Register, Mr. Toland has continued to make a liberal use of its eolumns for the purpose of destroying the confidence of the profession in the validity of the Goodyear Patents, and in vain boastings as to his ability and determination to defend himself "to the uttermost extent of the law." We are sure that pecuniary considerations could not have influenced him in the sudden abandonment

of his case; for he has repeatedly assured his readers that he had liberal offers of money to pay the expenses of the defense; and, besides, did not the editor of the New York Dental Journal, publicly, in the pages of his journal, with marvellous liberality, offer *to pay Mr. Toland* $100, *in case he should win the suit?* To attribute Mr. Toland's defection to "*fright*" would be to cast doubts on his fitness for his present position. No one would probably charge him with being "*bought*," and *we* will do him the justice to say that badly as he *sold his customers*, he never "sold" himself to the plaintiffs in the suit.

What became of "*his principles of duty to the profession*," may be inferred from the fact that he declared to a friend only a few days before the time for trial, "that he did not care a d—n what became of the suit." He might, probably, have added, with truth, he cared as little what became of the numerous victims to his interested misrepresentations in regard to the Goodyear Patents.

With these remarks, we take leave of Mr. Toland, and of a three years' litigation with him and other members of the Dental Profession. Whatever may have been the views of that profession at the commencement of those suits, we think they must now be satisfied that our claim to the exclusive right to the use of vulcanizable gums for dental purposes was a just one, and that the parties who have so violently and persistently assailed us for making such claims, have been actuated in so doing solely by the most sordid motives. It should be remembered that neither of them has ever produced, under oath, before any court, the least particle of evidence to invalidate our claims. Notwithstanding their boasting assertions that the Goodyear Patents were invalid, and our claims mere assumptions, when the time came for producing *proof* of such assertions, every one of them retired from a contest which they knew could bring to them only disgrace and pecuniary loss.

It remains for those who have been misled by these assertions now to determine whether they will voluntarily come forward and acknowledge the validity of our claims, or will, by the continued unauthorized use of our property, oblige us to resort to the law for protection. Many members of the profession have promised to pay for licenses as soon as the Toland suit was decided in our favor. Hundreds of others, acting under his influence, have made no such promises, but we shall confidently expect that all members of the profession will now be ready to act the part of honorable men, and hereafter duly respect our rights. We think it must be conceded by all, that in view of the great value of these rights to the profession, and of the unparalleled extent to which infringements upon them have been made, we have exercised greater forbearance than could possibly have been expected of us. We feel, now, that we have arrived at a point at which farther "forbearance would cease to be a virtue," and we have come to the determination to

maintain our rights to the fullest extent, by the use of every means necessary to the accomplishment of that object. Should we unfortunately be obliged to resort to legal measures, the profession may rest assured we shall use them *promptly*, *impartially*, and in *every case* in which we find milder measures to fail. As the persons infringing upon our rights are scattered over a large extent of territory, we shall give ample time for all to receive this notice, and to act upon it, before we commence compulsory proceedings. We shall probably commence no such proceedings before the first of February, 1862; but we would earnestly invite all who intend to make an amicable settlement with us, to do so without delay, or at least to notify us of their intention so to do. This will prevent our making preparation for the commencement of suits against them, which we shall otherwise do previous to the date above mentioned. We would respectfully invite all our licenses to report to us all cases of infringements which may come within their knowledge; and we promise them that such cases shall meet with prompt attention, if not settled before the date above mentioned.

In order that the use of the vulcanizing patents may be brought within the means of all, we have decided to reduce the price of licenses for the balance of the time for which the patents were granted, to the following standard, viz.:

For an Office Right for a town containing less than 5,000 inhabitants, . . . . . $50 00
Do. do do over 5,000 do. 75 00
Terms—Cash on delivery of License.

These terms will be for such only as voluntarily pay for a license. Others will of course expect to abide the consequences of their course.

We would also announce that no more vulcanizing will be done by our agents for the profession generally after the 1st of January, 1862. All who wish to use the material in their practice after that date, must purchase an office right, under which they can either vulcanize themselves, or hire others to do it for them. This measure we find necessary for the protection of our rights.

In closing this article, we would express our grateful acknowledgements to those members of the profession who have uniformly respected our rights, and we trust the time is not far distant when we shall number all members of the profession amongst our friends.

AMERICAN HARD RUBBER CO.

[For the Vulcanite.]

## REVIEW OF DR. J. H. McQUILLEN'S "REVIEW" OF THE MUSCLES CONCERNED IN THE DEPRESSION OF THE LOWER JAW.

BY T. H. BURRAS, M. D., NEW YORK.

*Muscles Concerned in Depressing the Jaw.*—"The only muscle that acts as a depressor of the jaw is the Digastricus. The origin, insertion, direction, and pulley-like attachments are beautifully adapted for the performance of this office."

This little parergy seems to have stirred up my learned and much esteemed friend, Dr. McQuillen, of the Dental Cosmos. On first glancing over the review, the professor has pleased to favor me with, I supposed I had either arrived at the age of Old Fogyism, or that new discoveries had been made of muscles, and their uses, that I had not been properly posted in, for it is now some thirty years since I have handled either Tenaculum or Scalpel for the purposes of dissection, but in comparing notes taken at that time, and recent reflection since reading the pleasing article of review in the Dental Cosmos of October, reminds me of an incident that occurred among some contrabands at Fortress Monroe. While sleeping around a fire in camp, with their feet in the ashes, one of them aroused up and exclaimed, "Take 'are dare! I smell somtin'—somebody's foot 's burnin'. Oh, golly!" said he, jerking up his own pedal extremity, "t'was dis darkey's foot arter all!"

I am at least very much obliged to the doctor for more influence and efficiency of my much favored muscle than ever I dared to honor it with, when he says, "In addition to assisting the muscles named in depressing the lower jaw, or elevating the Os Hyoides, according as the one or the other is made a fixed point. The Digastric opens the mouth even when the lower jaw is fixed." Now, when the lower jaw is fixed by the combined voluntary action of the Temporal, Masseter, and Pterygoid muscles, how the Digastric or any and all the other muscles which are *inserted* into the Os Hyoides, can open the mouth, is more than any Physiologist has ever credited them with, and more influence than they really do possess. That the *Omo* and *Sterno Hyoides* are inserted to move the Os Hyoides, and may exercise an influence in opening the mouth, but it is through the medium of the Digastric and is about the same influence that the monkey exercised over the chestnuts, through the medium of the cat's paw, and about equal to that which the Diaphragm and Abdominal muscles possess over the Spheneter Ani, viz: voluntary concert of muscular action. And furthermore, as to the Os Hyoides being made a fixed point for the movement of muscles, that I profess to state is never the case naturally or voluntarily, for when the jaw is depressed to any great extent, the Os Hyoid is motion-

less, or in other words, (I hope the doctor will swallow this,) the Os Hyoides is dependent upon the jaw and is inoperative when the mouth is wide open, and the operation of deglutition is only correctly and naturally performed when the mouth is shut and the jaw is made the fixed point for the motion of the Os Hyoides upward. And again, "In the effort to open the jaw as wide as possible, the depression is due to the contraction of the Steno Hyoid and the Omo Hyoid muscles." Now the doctor has a very good point here, and I only wish he could hold it as fast and immoveable as the Os Hyoid is held during this operation, for in the process of gaping these muscles are counterbalanced by the Genio Hyoid and the Mylo Hyoid and the Os Hyoides is fixed in an immoveable position during this process, not for the purpose of depressing the jaw, this as in many other operations, is a voluntary concert of muscular action, by allowing the Digastric to overcome the combined action of the Temporal masseter and Perygoid muscles, and where all the muscles of Mastication, Deglutition and Expression act a greater or less part.

As all muscles are evidently intended for motion, they are all possessed of vital principle and irritability, and each muscle is divided into a body and two extremities; these extremities of a muscle are generally distinguished into a head or origin and a tail or insertion. The first is considered as the fixed dormant or immoveable attachment, the second as the active, moveable, or loose point to the alteration or movement of which the action of the muscle tends. To allow the general body or belly of a muscle to act and play with facility, there is a thick coat over it of cellular substance, which is the proper membrane or sheath of the muscle, and as every fibre of a muscle is active and the fibres are not only swelled out but are sometimes thrown into knotted and zig-zag forms, to allow this action, this membranous substance dips in and pervades all the fibres of our body. The action of every muscle depends upon the length of its fibres, and the extent of its motion corresponds to this. Many peculiar arrangements of the muscles have been made by the various authors. But the simplest and most practical is that which demonstrates them according to their situation, and properly considering them as cords attached to the bones, or otherwise, to effect their movements. The Os Hyoides is a small bone situated at or near the base or root of the tongue and upper part of the larynx, where it is placed to allow the *insertion* of the several muscles from the lower jaw into it. In its shape this bone somewhat resembles the lower jaw, being convex before and concave behind; its thick or middle-part has been denominated its base, and may be felt outwardly. It sends out two processes which pass backward along the sides of the throat, and termed its horns. These are tied by a strong ligament to the styloid process of the temporal bone. Near the basis

of this bone is formed the root of the tongue and upper part of the larynx, with the epiglottis situated upon it near that valve which regulates the opening of the wind-pipe. By its horns the opening of the wind-pipe and gullet are preserved, extended as they pass along the side of the throat. Hence it forms the centre of all the motions of these parts. To it the muscles are appended, which either raise or depress the throat or move the tongue, and it connects them all together.

The muscles of the throat proper are divided into those that pull it down and those that draw it upward, and are the Sterno Hyoid which passes from the Sternum to the Os Hyoides. In its form it is a uniform, flat, smooth, fleshy muscle. It arises from the upper and inner part of the Sternum and is *inserted* into the base of the Os Hyoides. Sterno Thyroideus.—This muscle arises from the Sternum at the upper and inner part, and from the cartilage of the first rib, and is inserted into the under and lateral part of the Thyroid Cartilage. Omo Hyoides.—This muscle is of considerable length and very slender, reaching from the shoulder to the Os Hyoides. It lies along the sides of the neck and has a belly divided at the middle by a cross tendon which forms it into two heads. It arises from the superior notch of the Scapula, and is inserted into the base of the Os Hyoides at the side of the sterno Hyoid. By the action of these three muscles the throat is pulled down by the two former; this is performed in a direct manner, and by the latter it is drawn to one side, though by the concurring action of both it is equally direct.

The muscles which elevate the throat are the Mylo Hyoid which arises from the inside of the lower jaw, extending from the posterior molar to the apex of the chin, where it joins its fellow and is *inserted* into the body of the Os Hyoid, its action is to pull the Os Hyoid both upward, forward, and to a side. Genio Hyoid arises from the chin at a rough point or tubercle at the inner side of its symphises, and is *inserted* into the Os Hyoid. Its action is to draw the Os Hyoid towards the chin when the jaws are shut, and is inoperative when the jaws are extended.

Stylo Hyoid arises from about the middle of the Styloid process, and is inserted into the Os Hyoid, where its base and horn are joined. Its fibres split above its insertion so as to allow the only muscle that acts as a *depressor* of the jaw to pass, which is the Digastricus, this muscle has a double belly. Its *origin* is from a groove at the root of the mastoid process, it passes obliquely forward and downward, and forms a round tendon, which is inserted into the Os Hyoides; after which it runs obliquely upward and forward, and is at last inserted into the bones at the lower and anterior part of the chin. Its evident aim and object is to open the mouth by pulling the lower jaw down-

ward and backward, and when the jaws are *shut* to raise the Os Hyioides. After this very partial description of the muscles of the throat and jaw, it would not be improper to consider their mode of action in Mastication and Deglutition as those were the points under consideration which provoked this *Muscular Contest.*

In opening the mouth to receive the food, all the muscles are employed that raise or depress either of the lips, the mouth is then shut by the Orbicularis while the flesh of the lips and cheeks are pressed close by the Masseter and Buccinator, as we scarcely assist much by the Levator Labii, which rather tend to pull the lips out from the gums. In the meantime by the motions of the jaw the food is properly manducated; this motion is produced by the muscles *inserted* into the lower jaw and are intended for raising it upwards with different degrees of obliquity, while these act on both sides more or less in concert. It is chiefly the external Pterygoid which effects the lateral motion, moving the jaw alternately to one side or the other, or to protrude the jaw forward.

While the food is being properly masticated, it is confined by the motion of the tongue from being thrown inward; this organ is capable of more varied motions than might be expected from a cursory view of the muscles inserted into it, the fibres of these muscles are continued into the substance of the tongue, and the terminations of these fibres act in a very different way from their origins, as the muscles intended to move the body of the tongue serve many other great variety of purposes. The Lingualis in particular seems to have this varied action, just as the sphincter of the bladder in its action, differs from that of the very fibres that form it. When the food is sufficiently Manducated and prepared for deglutition it is gathered up by the tongue and carried backward into the throat; this operation is chiefly performed by the Stylo Glossi muscle that pulls the tongue backward towards the throat at the same time the point of the tongue is raised towards the roof of the mouth and its length shortened by the action of the Lingualis, as the tongue is brought backward with the food upon it, the muscles connecting it with the epiglottis are now relaxed and a consequent pressure is produced upon the glottis and respiration is in a measure stopped, and life would seem to be endangered, but a sudden effort of nature succeeds to relieve. The several muscles are now thrown into a convulsive action, particularly the Digastric, by means of which an effort of swallowing is produced, as well as by means of the others beneath it which are all put into sudden exertion at the same time. Thus the Omo Genio and the Thyrio Hyoid muscles act that the larynx may be pulled forward along with the Os Hyoides; in consequence of which the pharynx is dilated, and room is made for the food which is thrown with some force over the epiglottis; or, in other words, the epiglottis and pha-

rynx are drawn forward so as to leave the food in the pharynx, and from the larynx being in front of the pharynx it is mechanically dilated, during the time of this muscular exertion the nares are also closed in the most accurate manner. The food being now thrown with considerable force into the pharynx, it is immediately irritated to perform its exertions, and the fibres in a circular oblique manner begin their vernicular contractions, which determine the downward motion, then by the constrictors of the pharynx the mass is pushed into the Œsophagus, but after it has descended some distance the Digastric and other muscles are relaxed. There being now a certainty that Deglutition will be accomplished by the successive independent action of the muscular fibres of the Œsophagus, by which it is thrown into the stomach.

In conclusion, Dr. McQuillen will accept my kind regards for the very able manner in which he has handled the Review; at the same time, as all muscles are intended for specific action, and not like the fabulous Old Maid's tongue, hung in the middle and works at both ends, he will perceive that the action of the Digastric, even from the authority of *Todd* and *Bowman*, whom he quotes, is that its origin is dormant, while its insertion in the Os Hyoid is intended to hold it in a firm and immovable position, while by its anterior and only active part during mastication, it depresses the jaw, after which, and while the jaw is closed during the process of deglutition, the posteriore operates upon the Os Hyoides in connection with the other muscles he named.

## COMMUNICATIONS.

[For the Vulcanite.]

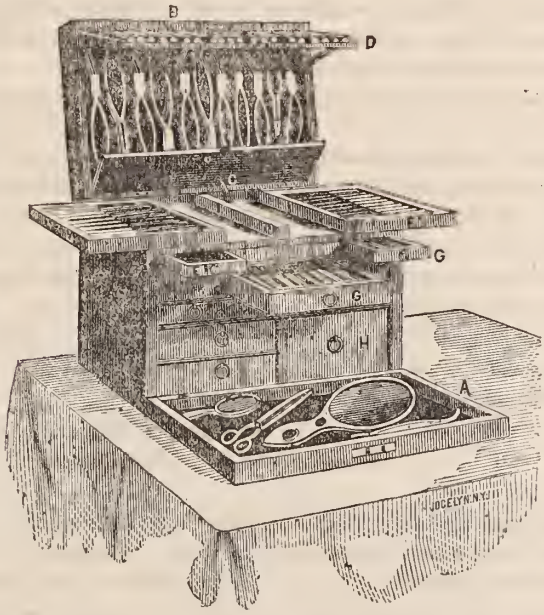
Friend Franklin:—Enclosed I send you a photograph of a new case which originated in the attic of this "House" and which I call (egotistically of course) the "*Multum in Parvo* Dentist travelling case." I have had the case, in constant use for two or three years, and were I to be getting up another, I cannot conceive, even after nearly three years of experience, where I could make the least improvement. The whole concern when closed only occupies a space measuring 14 inches long, 9½ wide, and 10½ in height, and yet I have managed to so pack and arrange in the internal space, that I carry a complete outfit for my operative department, forceps, pluggers, scalers, excavators, elevator, turnkey and fulcrums, napkins, cotton, foil, foil-scissors, mirrors, etc., besides which, I take a full assortment of implements from my laboratory to accomplish most needed operations in mechanical Dentistry; viz: blow-pipe, lamp, plaster, sand, polishing powders, lathe, wheels,

impression cups, wax, assortment of teeth, plate, solder, shears, etc. "Much in little" indeed, who'll better it?

The case proper with the drawers, was made by that master *Dentician*, Chevalier, under my own supervision, and from drawings furnished by myself, the arrangement of the tools and the lining I did here in my office. But for the description.

The front of the case drops down to a level with the bottom, as seen in the cut Letter A., being hung by a stout "table hinge joint" to the bottom. About the edge of this fall is a band projecting half an inch, thus forming a shallow tray in which to arrange mirrors, shears, etc.

The top of the case or cover, Let. B., which is $1\frac{3}{4}$ inches deep inside, is held when open at an angle of about 100 degrees with the top drawers




by an elongated brass quadrant Let. C., supported at its lower extremity, by a brass plate, made fast in the partition running across the centre of the case. Running the entire length of the top (inside) is a 4-inch wide strip, into which are bedded the forceps. These are retained in their place by a double false lid, the upper portion when open being hung to the front of the top proper, and when raised and held up by the brackets at the ends makes a capital table upon which to spread the excavators Let. D., (kept when not in use in the small drawer at the left hand, Let. E.) In the back of the case there is a dove-tailed groove in which slide corresponding brass strips made fast to the back sides of the top drawers or sliding trays, thus allowing them to be drawn to

the left and right, Let. F.F., exposing the compartments beneath used for heavy pluggers, Let. G.G. The rest of the case speaks for itself; only, I may say, that the deep drawer in the lower right hand corner, Let. H. contains a small square tin lamp and two tin boxes of the same size for plaster, sand, &c. leaving room for half a dozen impression cups besides.

This case has been examined by a great number of dentists, among them that prince of mechanical dentists Professor Austen of Baltimore, and all have conceded to it special claims to approbation not possessed by any other case yet introduced to the profession; and even the Chevalier himself pronounced it "the *biggest little thing* he ever had anything to do with." While at the Baltimore Dental College session of 1859 and 1860, quite a number of the students of the graduating class, took drawings of this case so as to make, or have made for them, a similar one for use in their practice.

I send this Photograph and description to you, and you are at liberty to make such disposition of the same as you please. The case is not "patented" or is it going to be, not by myself at least; and should you deem it worth a publication in the VULCANITE, I can but think that many of your readers, especially those located in small towns having a country practice, and who have to "trounce the cat" some days in each month at locations from their permanent office, in order to get soul and body to continue partnership, will thank both you and me for the "institution" here for the first time brought publicly to light.

In this connection I wish to thank the artist Mr. Van Aken for his kindness in making me the Photograph.

J. CARROLL HOUSE, D.D.S.,
*Lowville, N. Y.*

[In consequence of the indistinctness of portions of the Photograph from which the above cut was made, we did not observe the trays underneath the sliding trays F.F. and consequently did not letter them on the photograph before sending it to the artist. The sharp eye of our artist however, discovered them by the aid of his magnifying glass and has represented them in the cut as seen on each side of the bar, under and between the sliding trays F.F.—ED.]

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MR. EDITOR:—Since I had the pleasure of reading your interesting and instructing journal the thought has suggested itself to my mind of the importance of such periodicals being sustained. It is just such books as yours that can be condensed into Encyclopedias, the compilers of which roughly scoop off the cream of all the new discoveries in our profession

that have or may be recorded in the columns of various periodicals during the year. We believe in the progress and diffusion of dental knowledge, and in the perpetuation of all the ties which bind our brotherhood so happily together. We have and will ever be willing to continue to contribute views to this end. We believe every dentist in this country, should subscribe for one or more dental periodicals, not only for his own benefit but also for his patrons. Many a mind has derived its first electric stimulous from the hint in some dental periodical, and some of the greatest discoveries have originated in the simplest and most common occurrences. The knowledge of effects and their causes, together with the manner in which they mutually affect each other, is what constitutes science. Art is the practical application of the principles deduced from that knowledge to the useful purposes of life. I am glad, Mr. Editor, to see your new list of contributors. I thank you gentlemen. We need light and dental knowledge. Let the VULCANITE teach the profession how to realize Dean Swift's prayer, "Make two blades of grass grow on the spot where only one grew before," and let it still increase the *Mechanical knowledge of our profession*, by publishing the latest discoveries in practice, and then its Editor will have the noblest reward, that of being considered the "guardian angel" of genius, the champion of inventors, and the "prime motor" employed in developing physical and intellectual resources.

GEO. H. PERINE.

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## PROFESSIONAL STANDING.

BY DR. W. H. ATKINSON.

ELEVATION in professions as in nature's other departments delivers from contentions and antagonisms in the little and pestiferous sense. The highest sort of argument never "contends;" it simply points out the propositions that contain the basis of the matter under consideration, and then trusts to the inherent strength of the position to decide. This destroys contentions, strife, bluster, and elevates our efforts in research into a noble emulation in all our investigations which are not clear at first view. In nature the ethereal vastness between the planetary bodies is one grand field of perfectly harmonious relations. The upper currents of atmosphere become more and more harmonious as they ascend to the thinner, purer, and higher strata on the periphery of the atmospheric zone; while the violence of contending currents, constituting winds and storms, increase as they approach the surface of the ponderable and immovable "conservative" earth's crust: and though unseen by the eye, these currents gather force as they advance, till

finally everything ponderable and massive, becomes as nothing in their destructive, devastating march; and then, we plainly see, hear, and feel the effects that depend upon this unseen and to some minds incomprehensible power. The dizzy gyrations of the whirlwind will portray the unsettled and incongruous states of newly begotten professions or members but just introduced into them, who make no scruple to appropriate all the "rights, privileges, and immunities" said to belong thereto, in utter obliviousness of the fitness of preparation to entitle them justly and honorably to possess them. He who is really advanced to high ability in any profession will care less to be recognized by others than to see them make themselves worthy of high and honorable recognition, by the refined and illuminated in the profession and general society. No advanced competent teacher or practitioner can afford to descend to the sub-stratum of crimination, distrust, and hate, so painfully prevalent among common professional men. So the sooner we lay aside all these low practices, the greater and quicker will our levity become to ascend to the purer atmosphere of scientfiic certitude and complete competency in all that is worthy of the ambition of a truly professional man. Titles, diplomas, degrees and recognition by those already in the profession, do and ought to please the recipient of all these at the first experiences, but if these continue to occupy his attention and regard, after he has once proved how entirely empty of glory they are, he is a finished edifice, and you may as well put on the capstone and roof and let him *stand*. For such as he, are those that care more for show and shallow joys than the higher consciousness of full efficiency for good to all with whom they may have to do.

Where are they who are cumbered down with the dead weights of a false "dignity" and putting on of ridiculous "airs" to the extinction of pure christian joy and childlike innocence in all they feel, think, or do? Could we each and all but feel the imperative necessity there is for us to "look aloft" to keep us from becoming dizzy and crazed with our surroundings in the day of our proudest success, we could the more easily put on in earnest the true professional character. But so almost universal has it become to desire to pass for a false value in professional and social life, that the real type of what professional men should be is rare; indeed, so rare, that if we were about to call upon a limner to portray the character, I know not, in practical life where we could find a sitter. One blessed reflection comes to our relief in the thought, that the ideal conception has found lodgment in our minds, and if we will let it, it will create a thirst to work up to this ideal standard and at the length realize the type. And now let us, as many as have the idea within us, set about it at once!

## PLASTER IMPRESSIONS AND OTHER THINGS.

(Continued from Vol. 2. No. 1. Page 28.)

We closed our last article on the above subjects at the completion of the zinc die and counter die. In addition to these, we run one or more type, fusible, or Babbitt metal, into one of the counters for dies to be used for the first breaking up of the plate, reserving the zinc die and one counter for the last operation of swaging. Many dentists are in the practice of confiding the moulding and swaging of plates to boys, students, or others of little experience. This part of the labor being considered of little consequence, while the fact is, the moulding of models, and getting up dies, and swaging the plates, are very nice and often very difficult operations, and one upon which depends the ultimate success of the denture, and requires judgment and skill for its successfull manipulation.

Refining, Alloying, and Working Gold.—As many members of our profession are located remote from dental depots, or from persons versed in working the precious metals, a practical knowledge of the most simple manner of refining scraps and filings, may be of advantage, not only in a great saving in a pecuniary point of view, but in a uniformity in the quality of the gold, and consequently a better result will obtain. Much of the gold plate used by dentists in the United States is quite too inferior in quality for the health of the patient, as well as being less durable, much more liable to crack or split, both in swaging and by use in the mouth. Gold 20 carats fine possesses greater strength, is easier adapted, and will retain its shape better while soldering, and preserve its color longer than when a lower quality is employed, and it is cheaper when the dentist works his own plate from coin, costing less than ordinary plate at 90 cents per dwt. Take four American five-dollar gold pieces, and one gold dollar, which will make a little over 21 dwts., add 2 dwts. pure copper, and 1 dwt. pure silver, melt in a new crucible, the inside being previously well rubbed over with borax. Care should be taken not to carry the heat too high on new metals, as the difference in the specific gravity of the three metals are so great, as to separate them under a too high degree of heat, when the metal boils or assumes a rotary or revolving motion in the crucible, it may be poured into the ingot molds previously heated to a sissing heat, and oiled with olive oil. Gold is always tougher, and of a finer texture for repeated hammering and annealing before being rolled into plate. All the tools employed in working gold should be highly polished and entirely free from dirt, dust, or rust spots. Too great care, in this respect, cannot be exercised; the gold should be often annealed by carefully heating to

a dark red heat and, while slightly hot, plunged into strong muriatic acid, then thoroughly washed with clean warm water, and the surface is to be well rubbed over with very fine sand, and wash again. This should be repeated each time the gold is annealed, the object being to free the surface from all impurities. Solder for this quality of gold may be made by taking 18 parts of the scraps or cuttings from the plate, four parts pure silver, and two parts fine brass-wire, or English solid-headed pins, melt the gold and silver first, and then add the brass-wire or pins, and pour same as for gold.

All gold or silver solders should be wrought out free from cracks, if possible, and with the same care as if it were intended for plate or springs; if solder cracks in working, or is over refractory, it will not make strong or pleasant-flowing solder, it had better be melted over. Solders may be made for any quality of gold by employing the above formula, using pieces of the plate to be soldered, and alloying as above. Small quantities, from one to five dwts., may be melted on a piece of charcoal with a common mouth blow-pipe, and while in a state of fusion quickly press the molten mass with the flat face of a hammer; this chills the solder, rendering annealing necessary before any attempt is made at working it.

Gold containing zinc, lead, tin, or copper, may be refined by melting in a clean crucible, and when quite hot (nearly a white heat), throw into the crucible a little finely pulverized saltpetre and borax, keeping the metal at a high heat, and repeating the application of the saltpetre and borax at intervals of ten or fifteen minutes, for an hour or two, then pour into the ingot molds (heated and oiled), then break up the ingot, and place it in a clean crucible, well rubbed inside with borax, and when melted, add as much corrosive sublimate as will lie on a five-cent piece; continue the heat for thirty minutes, and pour as before directed. If the gold is still refractory, repeat the refining process till it will work; twice heating is generally sufficient; remember the heat before pouring into the ingot mould should only be a bright red, and not a white heat. Filings should never be first melted with scrap gold when filings are to be melted and refined; first pass a magnet many times through them to remove all the iron or steel, then place them in a glass, or earthen dish, and cover them with strong nitric acid, for one hour or more; this will dispose of any silver or brass they may contain; pour off the acid, the silver in solution may be precipitated with common salt (forming a chloride), or the acid evaporated by gentle heat, the silver can then be melted in a crucible with a little sal ammoniac in fine powder. The filings are to be washed with water, and mixed with a solution of borax, rubbed to the consistency of cream and placed into a crucible, the inside of which has been well coated with

borax, and placed over a moderate fire at first, and when melted, a little saltpetre added, and otherwise treated the same as when refining scraps; filings should be remelted, if necessary, till the ingot is soft and tough, before adding scrap gold with it, they may then be melted together and worked into plate. The best silver plate for dental use is made from pure silver (not coin), and from five to eight per cent. of platinum melted together; the texture of the plate is fine, and any degree of stiffness may be imparted to it by varying the quantity of platinum. Good silver solder may be made by adding to one ounce of pure silver, fifty medium-sized English solid-headed pins, melting together at a bright red heat, and pour into the ingot moulds, and worked into plate about No. 26, common gauge; the solder should be annealed often at a low heat while working, and before using, the surface rubbed with fine sand. No more solder should be cut into small pieces than is wanted at the time, as either gold or silver solder cut into small pieces, presents double the surface to atmospheric action, and the freer from oxydation, and the brighter and cleaner the surface of all solder is, when used the more perfect will it flow, and is correspondingly stronger and more compact, and the union of the parts firmer. Gold spring-stuff may be made by melting together fine gold 100 parts, and platinum 10-16 or 18 parts, according to the amount of spring required, it should be carefully hammered, and annealed often while working so as to prevent any fine checks on any part of the surface; however small the cheeks, they weaken the spring, and it ultimately fails at these points.

Swaging Plates.—The dies and counter dies being ready, with a piece of pattern tin we get the size and form of the plate required, by carefully pressing the tin foil on to the die as perfectly as possible, and with the point of a knife cut the tin the shape required for the plate, care being taken to examine the posterior portion of the mouth so as not to extend the plate back on the soft palate; with a burnisher or other convenient means restore the tin to a plain, smooth surface, and lay it upon the plate and with a pointed instrument mark out the form required. Two pairs of shears for convenience are required—one straight and the other slightly curved near the points. If only one pair are used, the curved ones are the best, as we can, by the exercise of a little ingenuity, cut on a straight line or a curve with the latter. After the plate is cut into form, anneal it thoroughly, cleanse in muriatic acid as before directed, wipe dry, and oil both sides with olive oil. This will not only lubricate the surface and prevent friction, but also prevent particles of the swage metal from adhering to the plate. With proper shaped hard wood mallets bring the centre of the plate into as perfect adaptation to the die as possible before attempting to bring the edge

over the ridge. The plate will require annealing several times in the operation, and each time before heating should be well brushed with soap, water, and fine sand to remove the oil and any particles of metal. If the washing does not remove all the particles of base metal, the *spots* should be carefully scraped off before heat is applied to the plate. If this is not done the base metal will burn into the plate, leaving dark, repulsive looking spots which cannot be removed without injury to the plate. After the centre of the plate is brought on the die, it should be confined in its place and not allowed to spring about while bending the other parts over the ridge. For this purpose the "Retain," a very neat and convenient instrument, gotten up by Dr. T. H. Burras, of No. 48 Great Jones street, New York, will be found most admirably adapted. Cut No. 12 represents the "Retain" as employed to hold the centre of the plate on to the die while the outer portion is being brought on and over the ridge. After the centre of the plate has been fitted with the mallet, a piece of gutta percha is softened and adapted to the upper side of the plate, and that portion of the retain, letter A, is placed on the gutta percha; the lower claw is placed under the table or work-bench, and with the screw the die and plate are held firmly to the table, allowing the operator the free use of both hands to bring the outer portion into position. This retain can be had at most of the dental depots, and is a valuable aid to the mechanical dentist. Some are in the habit of cutting the anterior portion of the plate to allow it to close in more readily around the ridge, and after being swaged between the dies, to solder the joints. This, in most cases, is unnecessary. With a proper quality of gold and the exercise of ordinary skill, the most difficult forms can be fitted without splitting the plate. The solder in the seam is very apt to sweat or change its position while soldering the backing to the plate, marring the beauty of the work when finished, and the plate is more liable to crack by use at the point where the joints were soldered than when the plate is made in one continuous piece. After the plate is swaged perfectly to the die, it should be cleansed and thoroughly annealed, in order

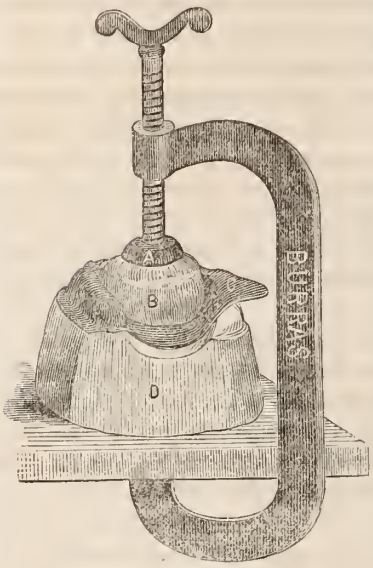


Fig. 12.

to ascertain if any warping or change will take place on the application of heat (which is often the case), and many cases have been lost in consequence of omitting this important precaution. If any change takes place swage and anneal till the plate, after heating, preserves its adaptation to the die; then it is ready to try in the mouth. At this point much could be said, we apprehend, to the advantage of very many who are engaged in constructing artificial dentures. The test which is taken by many as evidence of a good fitting plate in the mouth, viz., its power to resist direct downward force, may or may not be conclusive of its answering any practical purpose for mastication. We have seen many really artistic dentures, with an easy, natural expression, teeth well selected, the arrangement faultless, and articulation perfect, that could be removed by direct downward force with the greatest difficulty, nevertheless for mastication they were entirely useless, the patient not being able to eat the least thing with them. On examining the natural ridge the cause was sufficiently apparent, the anterior portion of which was soft and yielding, while the posterior portions were hard, and, as a matter of course, when the patient attempted to use the front teeth, the slightest pressure causing the soft gum to depress underneath sufficient to rock the back part of the plate off from the gum.

[To be continued.]

## THE AMERICAN DENTAL CONVENTION TO BE HELD AT TRENTON FALLS, N. Y.

The following was reported by the Executive Committee at New Haven as the Order of Business for the American Dental Convention to be held at Trenton Falls, N. Y., August, 1862:

1. Admission of members.
2. Reading minutes of the last Convention.
3. Report of officers and Committees.
4. Election of officers.
5. Retiring President's address.
6. Induction of officers.

All essays shall be read to open the discussions on the subjects to which they relate.

No member shall speak more than ten minutes, nor more than twice on the same subject, without permission.

I. *Miscellaneous Subjects.*—1, Anæsthetics; their use and relative value. 2, Alveolar Abscess. 3, The causes influencing an abnormal development of the teeth.

II. *Operative Dentistry.*—1, Filling teeth; simple and complicated cavities. 2, The dental pulp; its varied treatment. 3, The extraction of teeth.

III. *Mechanical Dentistry.*—1, Artificial dentures; temporary and permanent.

IV. *Unfinished Business.*

N.B. The Executive Committee suggest that half an hour every morning be devoted to the presentation of models, improvements, and inventions, and the disposal of business not embodied in the regular order.

## RISING ON COATING PLASTER MODELS.

*Rockford, Illinois, October 5th*, 1861.

B. W. Franklin:

Dear Sir:—Through the Vulcanite I wish to impart a little light to some new beginner in putting up vuleanite work. To prevent the plaster from being pressed into the rubber, I cover the model with tin foil. But I have found it quite a task to remove the tin from the rubber when vuleanized. I have found a remedy for all the trouble. Take a camel's hair pencil and rub the surface of the plaster cast thoroughly with liquid silex, and then put on the foil, pressing it down with a batten of cotton or cloth. When the flasks are separated after vulcanizing, the tin will all peel off without the least trouble. One moment's time will thus save an hour's trouble and labor.

I wish also to give a little caution to the new beginner, as I take it for granted that old heads have learned it all, so that these few lines are not intended for them. Be very careful and keep the liquid silex from the inside of the teeth and rivets, where the rubber should come and remain in firm contact, as it causes the rubber to be spongy and light. You will find that the rubber around the teeth will be loose, and as this state of things is caused by the silex, you must be very particular and keep it away from these parts. The rivets, before the rubber is packed around them, should be thoroughly cleaned of wax and then washed with alcohol, using a hard, stiff brush—a tooth-brush is the best. A few such precautions to a beginner will not only save jobs from repair in a short time, but will also save the faith of one inclined to be a little skeptical as to the value of rubber in the dental art.

C. B. Rising.

B. W. Franklin, Esq.: *Janesville, April 1st*, 1861.

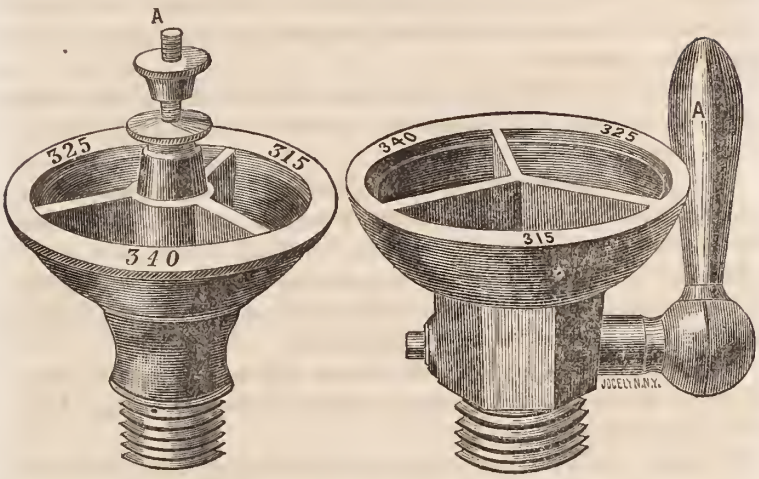
Dear Sir:—The "Fusible Gauge" came promptly to hand. It is *just the thing*. I have used it and find it to answer in every respect as well as the old thermometers, and it can *never break*.

Respectfully yours, M. B. Johnson.

## FRANKLIN'S FUSIBLE GAUGE.

NE PLUS ULTRA.

*Patent applied for.*




The principal difficulties heretofore experienced by the profession in manipulating the Vulcanite Base, has been found in the unreliability of the thermometers in common use. These instruments are all necessarily frail, and constantly liable to fracture from the expansion and contraction of the delicate glass tubes while in use, as well as in transhipment. The loss of time to the dentist, as well as the expense and delays of repairing thermometers, in very many cases have amounted to no inconsiderable sum, and caused serious and vexatious delays, besides the variation in thermometers of the best makers amount to as much as 25 degrees, this has not only resulted in the loss of one or more cases of teeth, but has subjected the operator to loss of time in testing new, or repaired instruments, before being able to bring out the usual satisfactory results. We have expended much time and money in experimenting, and consulted many Steam Gauge makers, with a view to produce an instrument that would test the heat with sufficient accuracy for the vulcanization of dental preparations. Various suggestions and modifications of existing apparatus were made, but the expense of a reliable test was too great to warrant an attempt at their introduction to the profession. The consequence was for over two years past we have sold several thousand thermometers, most of which have been repaired many times and are constantly giving out, subject-

ing the parties to the annoyance above recited. We have at length produced a very simple, cheap, and *positively indestructible* instrument, which we have practically tested in our Laboratory for over six months, not having used a thermometer in that time, and have produced more uniform and satisfactory results than was attainable with ordinary thermometers. There can be no doubt that this improvement in this indispensable instrument is the most important one ever made in the vulcanizing apparatus.

The above cuts faithfully represent our "Fusible Gauge," and which from its reliability must necessarily supersede all the thermometers now in use.

Explanation.—The cup of our "Fusible Gauge," as seen in the cuts, are made of brass and divided into three compartments, below which is a faucet or blow-off at A, cut 1. Cut 2 letter A, is a safety valve and blow-off, these Gauges are attached to the Heater in place of the ordinary thermometer, by means of the screw, and are adapted to every description of heaters in the market.

The compartments marked 315, 325 and 340, each contain an alloy of metals fusing at different degrees of heat, including a range from 295 to 360 degrees.

Description.—The upper nut when screwed down, raises the valve and allows the steam to escape. The middle one regulates the pressure on the spring, increasing or diminishing it at pleasure. The lower one is simply a *set nut* which when screwed down prevents any change in the action of the safety-valve.

Directions for Use.—When the alloy in the compartments marked 315 has become *granular* the temperature in the Vulcanizer is 295 degrees; as it changes from the *granular* to a *mushy* condition, the heat has increased to 310 degrees, and when it has become *fluid* the heat has increased to 320 degrees, which is fully demonstrated by a comparison with the best Standard Thermometers and Steam Gauges.

The alloy in the compartment marked 325 begins to be *granular* at 320 degrees, and in that condition a pointed instrument can be forced into the centre of the alloy, while the outer portion remains firm. This is the *true vulcanizing heat.* This alloy loses its granular condition and becomes *mushy* at 330 degrees, and when *fluid* the temperature of the vulcanizer is 340 degrees.

The alloy in the compartment marked 340 is of little practical value except to indicate an extreme degree of heat. It is slightly *granular* at 340 and fluid at 360 degrees.

Remarks.—It is confidently believed from the constant use of these "gauges" for over six months, that no change in the fusibility of these

alloys can take place, for only one of them ever becomes fluid in the heat required for ordinary vulcanization. The best authority on the various metals and their alloy, inform us that oxydation of metals cannot take place at their melting point. We have not been able to discover any change in the fusibility of these alloys after six months' daily use, and we confidently anticipate that the profession will recognize this great improvement as being among the most valuable of the many that have aided them in their arduous labors, and by its introduction they will no longer be subjected to vexatious delays, and pecuniary losses in consequence of their thermometers "giving out."

Parties ordering these "Gauges," will be particular to specify with what style and make of heater they are to be used.

Price, $3.

Address, B. W. Franklin, No. 73 Bleecker St., N. Y.

Agent for the sale of Office Rights, Apparatus, and materials used under the Goodyear Patents for the Vulcanite Base for Artificial Teeth

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Notice.—The undersigned, appointed a Committee by the American Dental Convention at New Haven, at its session in August, 1861, to correspond with the Government in regard to so modifying the Medical service in the United States *army* and *navy*, as to admit Surgeon Dentists into the department, will be glad to receive any information or suggestions relative thereto from members of the Medical or Dental professions, or others who may feel an interest in this important movement for the benefit of our volunteers, and others engaged in the defence of our common Country, its Constitution, and Laws.

Dr. W. H. Atkinson, New York City,
" Geo. H. Perine, " " "
" B. W. Franklin, " " " } *Committee.*
" J. D. White, Philadelphia, Pa.,
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" Johnson, M. B., Janesville, Wis..
" Johnson & Harris, Memphis, Tenn.
" James Johnson, Staunton, Va.
" Jones, A. W., Montgomery, Ala.
" Johnson, S., Lynchburgh, Va.
" Jenks, W. D., Frederick, Md.
" Jarvis, O. A., New York City.

" Kingsley, A. W., Elizabeth, N. J.
" Knapp, Issac, Fort Wayne, Ind.
" Knowlton, P., Cincinnati, O.
" Kern, H. R., Columbia, Tenn.
" Keys, J. W., Montgomery, Ala.
" Knapp & McLane, N. Orleans, La.

" Lanterman, J. L., Lansing, Mich.
" Lindsey, S. I. & W. B., Frederick, Md.
" Lockwood, E. L., Washington, D. C.
" Locke, J. M., Boston, Mass.
" Lee, L. G., Lynchburg, Va.
" Lee, W. F., Columbia, Ga.
" Lord, V. A., Dunkirk, N. Y.
" Lord, E. D. & A. R., Bellevue, O.
" Lum, John, Paterson, N. J.
" Lawrence, Ambrose, Lowell, Mas.

" Manson, T., New York City.
" Munson, O., Washington, D. C.
" Morgan, A. A., Rochester, N. Y.
" Martin, S., Meadville, Pa.
" McCall & Turner, Binghamton, N. Y.
" Mahoney, John, Richmond, Va.
" Martin & Woodby, Norfolk, Va.
" Mills, Chas., Rochester, N. Y.
" Martin, W. N., Providence, R. I.
" Mallett, Samuel, New Haven, Ct.
" Metcalf, C. T., Providence, R. I.
" Murphy & Gates, Rome, Ga.
" Morgan, W. H., Nashville, Tenn.
" Milton, J. L., Grenada, Miss.
" Martin, Alfred, Attleboro', Mass.
" Maxon, A., Nunda, N. Y.
" McDaniels, H. A., Huntsville, Ala.
" McIntyre, S. C., Evergreen, "
" Meyers, C. B., Hillsboro', Ill.
" Miner, A., Niagara Falls, N. Y.
" Matson, L., Auburn, "
" Mercer, T. F., Mystic, Ct.
" Munster, C. F., Jackson, Tenn.

Dr. Mann, D., Painsville, O.
" Mansfield, J., Niles, Mich.
" McAuley & Paisley, Selma, Ala.
" McKenny, Wm. N., Norfolk, Va.
" McDowell, S. A., Goldsborough, N. C.
" Miller & Hale, Rockford, Ill.
" Merritt, Chas., Bridgeport, Ct.
" McClure, J. B., Carrollton, Miss.

" Newton, Hartford, Ct.
" Naramore, J., Rochester, N. Y.
" Nolan, D. S., Boston, Mass.
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" Norris, J., Charlottesville, Va.
" Norcross, D. L., Fredonia, N. Y.
" Noble, W. H., Mt. Morris, N. Y.

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" Robbins, A. B., Meadville, Pa.
" Rodrigues, B. A., Charleston, S. C.
" Robinson, S. M., Watertown, N. Y.
" Rogers, L. W., Utica, N. Y.
" Robinson, B. F., Cleveland, O.
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" Richardson, Jos., Cincinnati, O.
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" Russell, R., Nashville, Tenn.
" Rice, A., Spencerport, N. Y.
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" Requa, J., Rochester, N. Y.
" Ramsay, J., Springfield, O.
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" Ross, N. D., Troy, N. Y.
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" Small, M. W., Woonsocket, R. I.
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" Scroggs, J. A., Galena, Ill.
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" Sohn, E. C., Galesborough, Ill.
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" Scranton, J. N., Bennington, Vt.
" Stinson, Wm. H., Baltimore, Md.
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" Smith, A. S., Oswego, "
" Scott, Quincy A., Pittsburgh, Pa.
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" Schuyler, J. E., Hudson, N. Y.
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" Wright, S., Homer, N. Y.
" Wright, W. F., Pittsburgh, Pa.
" Wanzer, H. C., Rochester, N. Y.
" Westlake, A. W., Rahway, N. J.
" White, Thos. A., Detroit, Mich.
" Whitney, B. F., Buffalo, N. Y.
" Westcott, A., Syracuse, N. Y.
" Wilson, E. F., Rochester, N. Y.
" Walters, L. D., Lockport, N. Y.
" Whiting & Benedict, Detroit, Mich.
" Watt, Geo., Xenia, O.

Dr. Wadsworth, H. N., Washington, D. C.
" Wayt, J. H., Charlotte, N. C.
" Wilkinson, A. L., Huntsville, Ala.
" Ward, S. L. & W. G., Lowell, Mass.
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" Wheeler, W. H., Baltimore, Md.
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" Feeman, J., Somerset, O.
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" Miller, Seth P., Worcester, Mass.
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Ohio College of Dental Surgery, Cincinnati, O.

" Palmer, S. B., Tully, N. Y.
" Parker, Lewis, Potsdam, N. Y.
Pennsylvania College of Dental Surgery, Philadelphia, Pa.

" Reynolds & Reynolds, Columbia, S. C.
" Rising, C. B., Rockford, Ill.
" Randolph, A. M., Northville, Mich.

" Simonton, T. D., St. Peters, Min.
" Stratton & Walker, Keen, N. H.
" Shepherd, S. M., Petersburgh, Va.
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" Sherwood, V., Rondout, N. Y.

" Tully, A. W., Petersburgh, Va.

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" Ward, J. B., Hickman, Ky.
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" White, Geo. H., New York City.

# EDITORIAL.

To Our Readers.—Various causes have combined to delay the present number of the Vulcanite until the present time. We hope in future to be able to bring it out when it is due.

We would respectfully call attention to the article commencing on the first page of this number. In this connection we desire to say a few words to our numerous readers and personal friends, in reference to the relations we have sustained to them and the A. H. R. Co. Three years ago we entered upon the duties of acting as the general agent for the owners of the Goodyear Patents, so far as they pertained to dentistry. We then supposed, and now believe, that there was not, and at this time is not, a doubt in the minds of well-informed persons in regard to the validity of these patents. With this conviction we engaged in the sale of office rights and apparatus, at first having very little experience to base our opinions upon, as to the fitness of the vulcanite for dental purposes. Within these three years, however, we have mounted several thousand sets of teeth in the laboratory attached to the agency, and have had ample opportunity of learning from others, in different parts of the country, their experience with and opinions of this most wonderful substance. We have arrived at the conclusion that rubber, when properly vulcanized, possesses valuable qualities as a base for artificial dentures, and for regulating appliances, etc., not possessed by any other one material known to the dental profession, and hence, in all cases we advised our personal friends in the profession to adopt its use in their practice, and we have the gratifying satisfaction of knowing that all have more than realized their expectations of it. The business of the agency, thus far, has been one of peculiar embarrassment to us, consequent upon the constant misrepresentations of unscrupulous and interested dealers in dental materials not being satisfied with the profits from the sale of inferior compounds at exorbitant prices, and heaters of inferior make, which of itself would have been legitimate enough. To secure patronage from those who entertained doubts in regard to the using of other persons' property without their consent, it became necessary to raise the question of the validity of the claims of the owners of the Goodyear patents; and in order to appear consistent a defiant position had to be assumed. A brief reference to some of the acts of these parties will show clearly, to every unprejudiced mind, that a conspiracy was entered into whereby it was believed that large sums could be realized at the

expense of truth, honor, and even common decency. Mr. E. A. L. Roberts at first commenced operations with the "Coralite" (a name given to hardened Gutta Percha). For a brief time it had a kind of popularity, under the spur of almost every conceivable misrepresentation, and divers expedients resorted to,—among which the proprietor paraded the names of several prominent dentists in this city, who were made to say, that they had used the Coralite and the Vulcanite, and unhesitatingly gave their preference to the former. These circulars were extensively sent into all parts of the country, while the facts, as they afterwards transpired, showed that some of the names at least had been used without their owners' knowledge or consent; and furthermore, that one of the parties had never used the Coralite, and so stated in a communication to us which we published at the time.

Mr. Brigham, who at one time represented Dr. Putnam's half interest in the Goodyear patents in the city of New York and vicinity, issued a circular that gave many of the profession indirectly to understand that our agency had been transferred to him, and that all that was necessary for the profession to do was to purchase their prepared gum of him, at three or four times the price we were charging for a much superior article.

Dieffenbach flooded the country at several times with circulars setting forth the superior qualities of his *Amber Base*, long after it had been tried in the balance and found *wanting*. After an injunction was obtained against E. A. L. Roberts and others, and Dr. Dieffenbach had purchased an office right of the company for his own protection, and in a circular over his own signature, acknowledged the validity of the Goodyear patents, by stating that the Amber Base could not be used without a license from the American Hard Rubber Company, we had hoped that the embarrassments growing out of the constant misrepresentations of this class of men forcing ourselves and the company into an apparent false position before the profession, would cease; but no sooner had these been put to rest, than a spirit akin to them rose up in the West, and for a while he out-Heroded Herod, and many turned to him as a *last hope*. With the course he has pursued, the profession have already been made acquainted. Our rule is never to strike a prostrate foe. The opposition to the Goodyear patents has finally dwindled down to a very insignificant point, viz.: W. B. Roberts. But the weapons wielded in his hands are so impotent, and so dull withal, that they fall harmless, except, perhaps, the recoil may do some little harm. But of this we shall see in due time. Notwithstanding the many misrepresentations of these persons, professing at the same time to be actuated by a desire to befriend the profession and protect their rights, it must be apparent to all, that the stronger motive by far was to make money, regardless of whatever the consequences might be to their patrons; the consequence of which is, they have failed in accomplishing their cherished object; they have mostly failed in their business; some have left the country; some have joined the army, while others tried hard to do so, but for some cause to us unknown failed in that even; while all will agree with us that not one of these men, who have been so clamorous for the rights of the dear

profession, will ever aid one of their many dupes out of difficulties into which many of them have become involved by their advisement,—unless, indeed, the editors of the New York *Dental Journal* still retain the $100 which was promised to Toland, upon a contingency which rendered it quite safe for them to make the offer. In the meantime, and while these troubled waters were throwing up their mire and dirt, the Vulcanite Agency, the American Hard Rubber Company and ourselves, have pursued the even tenor of our ways, "grown older," it is true, and may-be "seedy;" but it is some satisfaction to us to learn that the editors aforesaid regard us sufficiently developed to go to seed, while their own verdancy precludes the possibility of such a thing ever happening to themselves.

B. W. F.

## SOCIETY OF DENTAL SURGEONS OF THE CITY OF NEW YORK.

The regular meetings of this Society have commenced in earnest for the winter season. The increased interest manifested by the members, and others of the profession at large, affords gratifying assurance of a series of profitable meetings the coming winter. The Society have thrown its doors open to the profession and the public. This effort to extend useful information cannot fail to bring about a better understanding among the members of the profession themselves, and also to make of all unprofessional attendants on the meetings better patients. The better the public understand the difficulties in the pathway to success in dental operations, the less exacting will they be, and the more credit will they bestow when any operation is successfully performed. The meetings thus far have been mostly preliminary. Dr. John Allen presented a paper on "Atmospheric Pressure-Plates," which will be found in the December No. of the Dental Cosmos. Dr. W. H. Atkinson, by special invitation, read a paper on "Mallet-Fillings;" and Dr. Geo. H. Perine, one on "Cylinder-Fillings," both illustrating by diagrams on the black board. The regular stated meetings are to be held on the evenings of the second Wednesday of each month, but the probabilities are that meetings will be held every two weeks. Members of the profession residing at a distance, visiting our city, will meet with a cordial greeting at the Society's Rooms, No. 24 *Cooper's Union*, on any Wednesday evening of the meetings of the Society.

The cuts below represent a new and important improvement in the construction of platina pins in teeth. The design and object of which is to secure the teeth more perfectly to the Vulcanite Base. As the pins are the principal means relied upon for holding the teeth to the Vulcanite, any improvement calculated to more effectually secure this end, cannot be regarded with indifference by the many employing the Vulcanite in their practice.

The pins, as seen in the cuts, have heads at their outer terminus. Each pin is set into a depression, which has two advantages—first, the pin can be of proper length, so as not to become exposed in finishing the work, or without rendering the case thick and clumsy to the tongue; the other advantage is, that sufficient Vulcanite will be embraced between the head of the pin and the bottom of the depressions in the teeth, to render it

almost morally certain not to break the Vulcanite away by mastication. There has been some little difficulty experienced in bending ordinary pins with plyers, unless a very thin-bladed plyer is employed, a thin tooth is liable to be broken in the operation. Persons of little experience will bend some of the pins so much as not to allow sufficient Vulcanite to press between the pin and tooth, to retain the tooth for any considerable time. Others bend the pins so little, that when the case is finished the pins are exposed; and others again, through oversight, neglect to bend them at all, and, of course, the teeth pull off by use. We cannot see that anything further can be desired in regard to pins in the teeth for the Vulcanite Base, unless it be to remove a small part of the upper portion of the head of the pins, to allow more Vulcanite over the edge of the head, in case a very thin ridge is required inside, or in case of projecting and irregular antagonizing teeth. The profession is indebted to Dr. S. S. White (successor to Jones & White), Philadelphia, for this important advance in a right direction. Success to S. S. White.

## MICH. DENTAL ASSOCIATION.

THE seventh annual meeting of the Mich. Dental Association, will be held in the city of Detroit, on Tuesday, the 7th day of January next, commencing at seven o'clock P. M.

It is desirable that every member should be present, as business of great importance will come before the Association. This Session cannot fail to be one of interest, as it is expected that those appointed to prepare Essays will be present; the subjects of which, being of vital importance to the profession, it is hoped the coming meeting will result in more good to the Association than has any that has preceded it.—Yours, very respectfully,

J. A. HARRIS,

*Pontiac, Dec.* 9, 1861. *Corresponding Secretary.*

# BUSINESS NOTICE.

## THE VULCANITE DENTAL AGENCY AND DENTAL DEPOT.

### No. 73 BLEECKER STREET, NEW YORK.

Our Agency is removed to the large building, No. 73 Bleecker Street, first door from the Manhattan Savings Bank, corner of Bleecker Street and Broadway, New York.

The constantly increasing business of this Agency and the large number of orders we are daily receiving from all parts of the country, for every description of dental goods, have determined us to open a Depot in connection with the general business of the Agency, at which place the profession can be furnished with everything required in the practice of dentistry. Our arrangements with manufacturers are such as to enable us to furnish every article required by the profession at the manufacturs' lowest cash prices. We shall offer all kinds of dental goods to cash customers at a discount from prices heretofore paid by them. We intend to keep the best selected assortment of Teeth (adapted to all the different styles of work) that was ever offered for sale at any one Depot in the country, comprising all the best makers' Teeth, viz: Porter's, White's, Mintzer & Co.'s, Jenness & Rubencame's, Oram & Armstrong's, Stockton's, Kersing's, Klein's, Neall's, and Eccleston's, making an assortment to select from not to be found at any other establishment in this city.

We are prepared to furnish Operating Chairs and Office Furniture, Laboratory Tools, Apparatus and Machinery, Rolling Mills, Forges, Furnaces, and Lathes, and in fact everything required by the dentist, including the largest and best assortment of Vulcanizers to be found at any other establishment. Our terms are cash. We are willing to divide the profits in the start with paying customers; *others we do not want.*

Those ordering goods to be forwarded by Express, to save expense of collecting and large discounts, will send us a draft on New York, or other current funds, in amount sufficient to cover the bill of goods ordered, and any balance over will be returned in specie with the package. We are compelled to this course from the fact, that the discounts in this city are in many cases, more than double to what the exchange would be on money at the place where the Dentist resides, and where their money is at par. Any Dentist residing at a distance from the city ordering five sets of teeth at a time will be allowed a discount of five per cent. from the lowest retail cash price that the same teeth can be bought for at any other place in the city. In addition to the five per cent., we will send to his address Twenty sets of teeth from which he can make selections; we will pay the express charges both ways, thus giving our customers at a distance every advantage that the City Dentists enjoy. Every article sold by us not answering the description, will be taken back without expense to the purchaser.

Address B. W. FRANKLIN, Agent,
No. 73 Bleecker Street, New York.

A limited number of advertisements will be inserted in the Vulcanite at the following rates:

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| One page, one year, . . | $20 00 | One page, one insertion, . | $8 00 |
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Address "VULCANITE," No. 73 BLEECKER ST., N. Y.

## BOOKS RECEIVED.

THE "Dental Register of the West." Edited by J. Taft and Geo. Watt. J. T. Toland, publisher and proprietor, Cincinnati, O. Monthly, at $3 00 per annum in advance.

The "Dental Cosmos." Edited by J. D. White, J. H. McQuillen, and Geo. S. Ziegler. Jones & White, publishers, Philadelphia, Pa. Monthly, $2 50 per annum in advance.

"The Southern Dental Examiner." Edited by J. P. H. Brown and Geo. J. Fouke. Brown and Hape, publishers and proprietors, Atlanta, Ga. Monthly, $1 00 per annum in advance.

"Cincinnati Dental Lamp." Edited by J. M. Brown, Cincinnati, O. Quarterly, 25 cts. per annum in advance.

The "American Dental Review." Published by A. M. Leslie, St. Louis, Mo. Quarterly, $1 00 per annum in advance.

The "Dental Enterprise." Edited by H. Snowden, Baltimore, Md. Monthly, 50 cts. per annum in advance.

"Revue Odontotechnique." Edited by T. R. Hammond, Paris, France.

"L'Art Dentaire." Edited by A. Preterre, Paris, France. Monthly, $5 00 per annum.

We would advise every dentist in the United States to subscribe for one or more of the above journals. Parties sending to us for dental goods can enclose the price of subscription, and we will have either of the above-named journals forwarded as per order. Try them—it would be a paying investment; better than money at interest. Dividends declared quarterly and monthly are paying institutions. *We repeat*, try them and see.

TO MANUFACTURERS OF

# MINERAL TEETH

AND

# DENTAL MATERIALS.

A Gentleman (an Englishman), well and favorably known in the Dental Profession throughout Great Britain, having represented a London House for seven years, in the capacity of Traveller, desires, on commencing business on his own account, to treat with a first-class American manufactory, to supply him with teeth and every material required by the profession.

Communications with full particulars as to terms, etc., addresed to B. W. Franklin, 73 Bleecker Street, will receive prompt attention. References given and required.

# THE VULCANITE.

**Vol. II.** **FEBRUARY, 1862.** **No. 4.**

## PROCEEDINGS OF THE SOCIETY OF DENTAL SURGEONS OF THE CITY OF NEW YORK,

"Cooper Union," Wednesday Evening, January 8th, 1862,

Subject—FACIAL NEURALGIA.

*Paper read by* J. S. Latimer, D. D. S.

Neuralgia, from *neuros*, a nerve, and *algos*, pain, means, strictly, pain in a nerve; and, though all pain is felt in the nerves or *through* the nerves, yet the nomenclature of our fathers is pretty well understood, and we will not quarrel with it. We have, also, the name tic doloreux, or painful tic. The name probably came from the fact that a convulsive twitching is sometimes seen in the faces of persons affected with this painful disease.

Concerning the causes of Neuralgia, many and opposing theories have been entertained; and, of course, the treatment based on those theories has varied as much.

The necessity of understanding the true cause in any given instance is fully shown in the fact that some, at one time, believed the facial nerve the seat of the affection, and resorted to excision of its trunk at the stylo-mastoid foramen, by which the muscles of one side of the face were paralyzed, while the pain continued unabated.

Neuralgia is divided by some into pure and intermittent. The former "is not dependent on any other affection," while the latter is consequent on malarious poisoning, and is often the only symptom of intermittent fever, as it is called. But I doubt not we often find the disease symptomatic from indigestion, uterine affections and abnormal conditions of various organs not at the time under the influence of miasma.

Dr. Carnochan, in an able paper on the subject of Facial Neuralgia, takes the ground that the disease (pure neuralgia, of course) is generally located in the second branch of the fifth pair, called the superior maxillary nerve, and that it is anterior to the foramen rotundum from which the nerve makes its exit after leaving the Casserian ganglion.

Among the causes of injury to the nerve, he enumerates, "1, prolonged irritation upon the periphery; 2, exposure; 3, injuries; 4, tumors; 5, diseases of the teeth; 6, pressure resulting from the periosteal or osteal thickening of the osseous foramina or canals; 7, sudden suppression of any of the important secretions, as of the catamenial discharge."

Here let us briefly examine the anatomy of the Trigeminus nerve. You will recall that it arises by two roots, the anterior or motor, and the posterior or sensory; the latter being much the larger, and having a ganglion upon it. But, if you will excuse the comparison, I will liken this nerve to the telegraph system. The sensory line terminates in the office of the commander-in-chief, anatomically called the medulla oblongata. This wire is composed of a hundred or more small wires, each insulated from the others as in the Atlantic cable. It emerges from the pons varolii where the pons joins the crus cerebelli, passes forward and enlarges into the ganglion of Casser, which rests in a depression of the upper surface of the petrous portion of the temporal bone.

This ganglion is important as the beginning of the grand trunk line, in which three important converging lines meet, and through which all communications are forwarded to the sensorium.

The first of the three lines meeting in the ganglion, is the ophthalmic which physiologically arises in several branching lines from the upper eyelid, integuments of the forehead, conjunctiva, lachrymal gland, the mucous membrane, and the muscles of the nose, the ball of the eye, etc. From these minor stations lines converge to form the ophthalmic branch, which enters the cavity of the skull through the sphenoidal fissure.

The third line is formed by the convergence of several small lines, commencing in the inferior teeth, the mucous membrane of the mouth, the tongue, tonsils, pharynx, gums, integument of the lips and chin, the parotid gland, the integument of the temple, etc.

But, most important, perhaps, for our present consideration, is the second branch or superior maxillary nerve. This line has ramifying branches and terminal offices in all the upper teeth, the eyelids, nose, lips, cheeks, the lining membrane of the antrum, gums, mucous membrane of the nares and palate, the integument of the temple and side of the face.

From all these points branches converge to form the orbital, the spheno palatine, the posterior, anterior and middle dental, and the infra-orbital lines, which unite anterior to the foramen rotundum, form the second branch and pass through to the ganglion.

All these lines are under the control of one company, and, as has been intimated in the description of the sensory root, each terminal office has a wire running entirely through to the sensorium. Other lines, as the portio dura and the great sympathetic have long occupied several offices in common with the trigeminal, with mutual advantage to all parties concerned.

As yet, we have barely mentioned the fact that the tri-facial has a motor root. This root is very small, arises from the pyramidal body of the medulla oblongata, passes close to and beneath the sensory root and ganglion without uniting with them, and emerges from the chamber through the foramen ovale where it unites with the inferior maxillary branch just beyond the otic ganglion. Hence, of the fifth pair, only the inferior maxillary branch has control over muscular motion, the others being merely nerves of special sense and sensibility.

Now, when we consider the intimate relation existing between the great sympathetic and the fifth pair, we are the better able to comprehend how a dispatch to the ganglion of Meckel, (which office is also occupied by an agent of the tri-facial line,) giving account of intestine difficulties in the hypogastric region, would be likely to produce considerable commotion all along the line of the second branch.

I am not aware that any one has satisfactorily explained the precise *manner* in which sympathy with a distant organ produces disease in the body of a nerve. We must, at present, be content to know that such is the case.

There is little doubt in my mind that miasma affects primarily the functions of the liver, or other important viscera, and that pain in distant parts is entirely symptomatic, though it is no doubt true that where the irritation of a nerve is thus continued for a considerable time, the ultimate is lesion of its tissue.

It behooves us, then, when a case presents with pain in the region traversed by the tri-facial, to examine well the symptoms. If the pain is sharp and darting, following the track of the nerve, appearing and disappearing suddenly, we may be sure we have a case of neuralgia. Our next object is to discover and remove the cause.

As the teeth are often responsible for the mischief, we first examine them, and if an exposed pulp or ulcerated fangs are present, they should at least be regarded with suspicion. If the pain is of the regular intermittent type, we suspect it to be symptomatic, in part, at least. If, after examination, no sign of disease in the teeth, gums, alveoli or antra, is discovered, we may safely infer that the primary cause is not and has not been confined to the mouth; though, as Dr. Carnochan declares, the cause *may* be exostosis of the osseous canals or

foramina, or, quite as possible, thickening of the osteal or periosteal membrane along the nerve track. But these latter causes are rather obscure and cannot always be discovered.

It is no doubt true that the effusion of lymph, which often terminates in inflammation, may, by endosmotic action, penetrate the neurilemma and disease the nerve tissue; indeed, the vascular, engorged and thickened condition of portions of the superior maxillary nerve removed by Dr. Carnochan, seems to incontrovertibly prove this fact. It is more than likely, too, that disease of the nerve tissue often remains long after the removal of the inflammatory cause. Hence the importance of careful inquiry of the patient concerning blows, falls, and other exciting causes, though of a comparatively remote period.

By some, odontitis or true toothache is pronounced neuralgia. This, it seems to me, is objectionable, because the disease does not extend to any portion of the nerve beyond the immediate neighborhood of the inflamed pulp, and because the pain is not of the neuralgic character. Of course, the periphery of some nerve is injured whenever inflammation of any part of the body exists; yet we do not necessarily have neuralgia. That exists from exposure of the dental pulp only when prolonged irritation of the peripheric terminations, aided by favoring circumstances, induces disease of the body of the nerve. If the causes are slight, or the constitution rather unfavorable to the disease, or if those causes have existed but a brief period, the disease may subside on the removal of the primary cause.

That two or more causes may exist at the same time is well known. In the New York "Dental Recorder" for March, 1847, a case is reported in which facial neuralgia of a regular intermittent type, was cured by the removal of several ulcerated fangs, and that, too, after constitutional treatment had been tried in vain. It is *possible* that *all* the causes of facial neuralgia enumerated by Dr. Carnochan might be found in one case, and we are not to rest content with a slight examination.

In illustration of the necessity of *thorough* search for the cause of disease, let me give you a case from my own practice.

Mr. T., student, attending his second course of lectures at a medical school of this city, came to me last week, suffering from what he called facial neuralgia. Mr. T. is of the nervo-lymphatic temperament, aged about twenty-five, and healthy. The pain was not darting, but presented more the character of odontitis, extending along the line of the superior dental nerves and forward to the median line, though seeming to center in the second superior bicuspid of the right side. The anterior teeth were sound, as were the bicuspids, though the second bicuspid was tender under percussion, and showed evidence of periosteal irritation. The anterior approximal surface of the first large molar had a large decay, but a fine probe failed to detect an exposure, though

tr. iodine applied to the cavity increased the pain considerably. It, too, was sensitive under percussion, though not in the same degree. The second multicuspid was sound and every way healthy, but the dens sapientia was chalky, stood without the line and pointing toward the cheek, while on the grinding surface was an irregular and deep cavity, but in which I was unable to detect an exposure. The other teeth had no exposed pulps.

Under the circumstances, I ordered a cathartic, a leech to the second bicuspid, and applied the arsenical paste to the first multicuspid. The next morning the patient called, saying the pain was increased, and that he had not been able to sleep until he "obtained liquor and got drunk." The tooth to which paste was applied remained as before, but the difficulty with the second bicuspid was increased, the leeching having failed to produce the least mitigation of suffering. Excavating the cavity of the large molar considerably further, I became satisfied that there had been no exposure of the pulp, and that the paste had not yet acted on it. The teeth were again thoroughly examined, but without result. At this juncture the patient impatiently demanded the removal of the suspected bicuspid, and I, baffled in my effort to find the cause, weakly, yea, wickedly consented, and extracted it. Both the pulp and periostium were slightly congested, but, with the exception of two epienamel decays on the approximating surfaces, it was sound. The pain continued, and would not yield to laudanum in the alveolus.

We then concluded that though the wisdom-tooth did not *seem* to be the cause of the trouble, it must soon become painful, and its removal *might* give relief; and so, as the physician, who has exhausted the pharmacopœia in vain, comes at last to calomel as the *dernier resort*, we removed the dens sapientia, when lo, the pain was all gone and the tenderness of the other teeth on that side immediately disappeared! On the buccal surface of the culprit, and which had been entirely covered by a loose and slightly-turgid margin of the gum, was a large decay in which the pulp was exposed. One important symptom which I omitted to mention in the proper place, was the pain caused in giving any lateral motion to the lower jaw.

It is by such severe lessons as this, gentlemen, that we are humbled and prevented from turning our ears from instruction by the conceit which unbroken success is likely to cultivate, unless we impute that success to the overruling providence of the Omnipotent.

But you will pardon the digression made for the purpose of showing the necessity of following Davy Crockett's maxim, "*Be* SURE *you are right, then go ahead.*"

Another case may serve to show the difficulty of discovering the cause of tic doloreux. Some ten days since, an Irish laborer came to me for the removal of the first superior right multicuspid. Tempera-

ment, bilio-lymphatic; age, about thirty-five. Had been unable to work for three weeks from pain in the right side of the upper jaw and head. Pulse strong and regular; tongue firred slightly; the breath smelling strongly of cheap whiskey. The jaws were large and the teeth all sound, with the exception of a slight cavity on the buccal surface of the first superior multicuspid. No periosteal tenderness, but much tartar and some turgescence of the gums in consequence. He had already employed three physicians, who evidently suspected the existence of hydrocephalus.

The disease had been developed by a cold from which the patient had suffered, and was evidently neuralgia of the second branch of the fifth pair; but, being unable to determine the primary cause, I filled the cavity before-mentioned, with Bevin's filling, and sent the patient to Dr. Carnochan, with the result of my examination, since which I have not heard from the case.

As yet, I have not been able to learn any method of distinguishing immediately the disease with a central origin, (that is, when the trunk of the nerve has become permanently diseased and changed in structure,) from that with a peripheric or reflex origin. On this point I want light.

Mr. Lobb, in a paper read before the Harveian Society of London, ascribes idiopathic peripheral neuralgia to atrophy, by which the nerve is prevented from conducting normal sensations to the brain, and by which the polarity of the nerve is affected, thus giving the idea of pain in the diseased portion. Mr. Lobb then proceeds to argue in favor of the continuous galvanic current as the only method of restoring the lost polarity and of stimulating the nerve to healthy nutrition. Dr. Carnochan, however, believes that cure can be effected only by the removal of the ganglion of Meckel, or its insulation from the encephalon. He describes three or four formidable operations in which he exsected the trunk of the second branch as far back as the foramen rotundum. All these cases were at least temporarily successful; though Dr. James R. Wood, at a meeting of the New York Pathological Society, held about the beginning of 1860, says that in one of the cases reported by Dr. Carnochan, and in which he removed the ganglion of Meckel, the pain subsequently returned. An inch or more of the trunk has been exsected and afterward the trunk has reunited and sensibility has been restored. Excision was performed by Dr. Mott in one case thirty-six times, with temporary relief in each instance.

When the operation of exsection is to be performed on the inferior maxillary branch, the soft parts are dissected off so as to expose the external plate of the jaw near the angle, and anterior to the posterior dental foramen. With a small trephine, enough of the external plate is removed to expose the nerve, which is then easily exsected. The hemorrhage is generally subdued without resorting to the actual cautery.

Dr. E. Andrews, in a lecture published in the *Chicago Medical Examiner*, after endorsing Dr. Carnochan's theory of pressure upon the trunk of the nerve in the foramina, says, that other tissues can accommodate themselves to continuous pressure, but nerve trunks under such circumstances become permanently troublesome. "The treatment," he remarks, "should be in the direction to remove the constitutional diathesis on which the local constriction depends; as, for instance, the rheumatic, syphilitic, or malarious influences. If this does not suffice and the pain continues, you may resort to surgical interference.

Dr. A. Wood says, that in Edinburgh the use of narcotics injected under the skin in the vicinity of the pain is almost universal. Mr. Brenchley says that the Germans consider muriate of ammonia very valuable in facial neuralgia. It is given in doses of half a drachm every hour, in camphor mixture.

M. Vautier reports a case in which facial neuralgia accompanied by deafness, was cured by the extraction of a wisdom tooth.

Dr. Van Archen, of Bogota, New Granada, reports an interesting fact relative to facial neuralgia caused by tobacco. He says, "I have to mention a peculiar kind of neuralgia occurring only in people who have worked for years in tobacco factories, besides being habitual smokers. In these, the body becomes so thoroughly saturated with nicotin, that occasional twitching of the muscles of the face occurs, which ultimately becomes an agonizing pain." In these cases, antispasmodics and narcotics have no curative effect, but they generally yield to the following formula:

℞ Sulphatis quininæ grs. viij;
Pulveris cinchonæ,
Terri carbonatis a a ℈j,

M. Divide in four powders.
S. One every six hours.

Our specialty confines our operations to the mouth, with a few exceptions, and our business is to decide whether the teeth and their surroundings are responsible for the disease, thus assisting the general surgeon into whose hands the case properly falls.

It is proper for me to state, gentlemen, in closing this paper, that want of time has prevented me from making it shorter by ridding it of much matter that may be irrelevant, and correcting the verbiage.

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*Paper read by* Professor W. H. Atkinson.

As all diseases are but departures from the standard of wholeness of function or health, it will be pertinent in treating of neuralgia to

divide it into separate departments of investigation, viz: its inception, development, and culmination in death, arrest or cure.

All science, now recognized as such, by the reigning dynasty of past and present authorities, is in the deplorable condition of divorce—disruption of parts denominated by these authorities, *sciences*—mark well, *sciences*, the plural,—just as if it were possible, in the great sense, to have opposing principles in the certainty of knowledge, which science means: hence the puerility of pluralizing the presence of the divinity of whole or perfect knowledge in its out-crop in any department of nature, and absurdly dubbing it sciences—knows!

The etymology of the term signifies "to know." As soon as we truly know anything, we at that moment, by instinctive perception, recognize its relation to that one certitude of knowledge of the infinite which can alone properly be denominated Science in the unitary and infinitudinal sense.

It avails us nothing to tarry in the fractional progression of the out-crop of science in the phases of idea, thought, opinion or belief, in their progress to knowledge, and call the present attainment of apprehensive ability by the dignified title of *a* science. But just this very thing is what the schismatics have ever done with a hardness commensurable with their lack of true knowledge.

The physician and surgeon, chemist and dentist, are Pagans and Jews, while for the time they ought to acknowledge, and heartily accept and practice the true Christian doctrine of completeness in all things. The Master said to his followers, "Ye are my witnesses;" that does not mean to tell the truth in part and withhold a part, or to tell truth part of the time and falsify the truth at other times. Now, this testimony for Christ (truth) does not mean the puerile acknowledgment of him in the seclusion of the cloister and prayer-circle among a special few; but it means a hearty, earnest acknowledgment of him at all times,—in the busy mart, in seclusion, in public and in private. And if this be the true interpretation of his blessed injunction to witness to his supreme excellency in all things, it reaches to our works of head, heart and hand, in any and all the multitudinous labors of life. To us of the dental profession, in all our studies and preparations to bring back those gone from the standard of health, and preventing those who are blessed with soundness from lapsing therefrom in any degree, it loudly calls for cleanness and purity of purpose in all that we do in the receptive or projective forms of professional labors. The labors of a professsional man must be three-fold to be efficient for high and good purposes, which may be thus pointed out to prove the divinity of all true labors or complete works: 1, labors of sense; 2, of understanding; 3, of intuition. Those of the senses are merely

material (so-called); those of the understanding are moral (so-called); those of intuition are truly spiritual and progressive.

Now, to make this clear to those who are only sensuous in all their endeavors, it becomes necessary to state, that each form of labor has a tendency to gravitate to its lowest manifestation. But, in fact, all must be received at the first through the plane of intuition or spiritual influx; and those who have not yet had understanding sufficiently developed to catch and hold the divine favor in the mental part of perceptive ability, catch it and hold it in the senses merely, and hence are truly Pagans or Jews in all they feel, think or do.

The correspondences of mental labor may be thus stated: in our passions (senses) we are brute, in our sympathies (understandings) we are human, and in our instincts (intuitions) we are divine. Now, if we open to the influx of the divine life-force through the plane of our instincts, and keep open, it will harmonize all the substrata of our natures; but if we close the door of ingress by wicked works, or by turning our backs upon our light and strength, the tendency is to gravitate to the lowest departments of our natures. This is proved by the examples of all men who have preceded us. Even Paul upbraids his Corinthian brethren, "Ye did run well for a season, who did hinder you?" That may very pertinently be repeated to the great mass of those of the present day, engaged in the various activities of life. For after having been made partakers of the freedom of children of light, most have gravitated to the pampering of lust and appetite by the exercise of all their understandings, which at length invariably, if persisted in, runs them into low and grovelling debaucheries.

My own senses tell me that all who have not emerged out of their home in the senses, will begin mentally to inquire what all this has to do with neuralgia, and feel like calling me to order for not sticking to the subject. All I ask of such is, patient attention to what I say; and if they do not understand, ask for a more clear exposition of the point that seems dark, and be assured I will stop and endeavor to hold away the curtain that obstructs the light, and let it penetrate by its divinizing effulgence.

Jesus Christ, it is reverently said, "came to seek and save that which was lost." Can you see that if any restore other to soundness lost, they may truly in so far be putting on Christ humbly and efficiently, even though unwittingly? Ah, my beloved brethren, there is the whole difficulty of the case. The schismatics are always crying out against a healing influence being exercised outside of the regularly accredited way, which would all be well enough if successful and useful results were the means by which "regular credit" were to be proved, instead of some obsolete patent issued by some petty government long since defunct for good, because of the debasement of a

low service, rendered to the lowest departments of an undeveloped state of governmental ability of low necessities out of which, thank God, the world has grown, and professions are growing. Be assured that our adored America is the land of promise to every lover of freedom, the real Canaan flowing with the wine of refreshment, corn of nourishment, and oil of joy, in the true sense of a wholeness to all philosophy.

How striking is the similarity between this plentiful country and the trans-Jordan Canaan of the wearied Israelites of wilderness journeyings! They "drave out" the heathen inhabitants; we have driven out the wild beasts and the wilder and more dangerous savages, and now the length and breadth of this pleasant and free land literally groans under the rich products of the virgin soil, while Europe is like the Egyptian and wilderness country, crying to God for bread to feed their needy ones. Let us recognize the hand of the Deliverer in all this, and obediently follow after holiness (wholeness) in every department of the activities of life to sure salvation.

Words used in professions purposely to darken council will pass away, and give place to a clear exposition of basal law, exposed in the close scrutiny of earnest, honest, and, may be, blunt conversational investigations.

I. Then, what is neuralgia?

It is not the harmonious and equable circulation of the nerve aura through the tracts of neurine throughout their infinitissimal ramifications and massive return to the seat of perception; but it is some disturbance of this normal current.

The word comes from the Greek for nerve and pain: hence "painful nerve" is the real sense of the term. If we were critically disposed, a play upon the weakness of terms, as such, might be appropriately indulged in here, for it is well known that there can be no pain cognized in absence of this organ of sense. Then let us soberly define what is meant by neuralgia, without going through the mazes of learned nonsense that hedge the subject about.

When from any cause a sensory nerve has so far lost its capacity to hold and transmit the ghost- (sentient) principle as to be incapable of supplying the needs and requirements of the tissue whose depots it normally supplies, these exhaust the "solution of life-force" held in its extremities next these needy depots, and thus we have a true neuralgia —a painful nerve—which calls for more of this mysterious presence; and when the supply is sent from the principal reservoir (the brain and ganglionic centres), the influx is too much for its weakened state to transmit, and it finds (like we sometimes do in certain circumstances when from debilitating practices we are not able to come to time) that "too much of a good thing is good for nothing," and sets up a

howl for the exact attenuation of this presence necessary to arrest and cure this aberration, and we truly say it is Neuralgia.

II. What causes it?

This query can, in our present state of knowledge, be but partly answered to the common apprehension; possibly to a very few favored by uncommon illumination the attempt might succeed, by only saying, anything that disturbs the normal play of function thus involved. Bad food—irregular feeding, even on good and proper food—undue exercise of any part of the physical economy—too much heat—too little heat (or cold), all these have at times produced this state. Mechanical lesion of parts by traumatic causes also are said to produce this condition; but certain degeneracy of molecular life must precede all exciting or immediate causes of neuralgia. Any disturbing force may do this. But the one cause of all causes most dominant is illegitimate exercise of the venereal function, the head devil and prime-minister, that execrable and indefinable practice—solitary vice. I would to God that I could make every boy and girl, yea, man and woman, in the vast earth comprehend and apprehend the worse than death that lurks in this species of vice, this sin against the Holy Ghost, that hath never forgiveness, neither in this world (generation) nor the world (generation) to come! Who is there that has a heart but would cry aloud and spare not, could they but know the tithe of what many a coward, heartless physician knows, who for fear of losing a paying family, neglects to do his duty to them in time to expel disease and loathsomest death from the household. I know there are not wanting men who call themselves physicians, and dupe people into employing them as such, who deny the wholesale death lurking in this practice. But I have never met the first one of them who did not yield his ground or throw himself back upon his assumed dignity in moody silence, and abnegate the whole thing sententiously under lashes of his better conscience, all the while refusing replies to direct searching queries. Some have gone so far as to refuse to teach their patients' families how to avoid disease, under the unchristian plea that curing disease and not preventing it was what they studied their profession for. I leave all such to wallow in mire too deep and dangerous for any but the strongest christian to safely enter, even for redemptive purposes. Having touched upon the important question of what causes neuralgia in this slight and superficial manner, which, if time and circumstances permitted, could be made so pointed that neuralgia would be taken off its genteel stilts and shown, as it truly is, the patent testimony of guilt of no ordinary trivial or venial character. The wonder is, that any once involved in it are ever extricated, rather than that our best means are so powerless to cure this opprobrium of surgeon, physician and dentist in their various practices.

III. How may it be cured?

Synthetically, this is easy to answer, and is—"Obey the laws of being in a correct and *active* life." But what that means, it would require volumes to unfold in detail to meet the apprehension of the fractional knowledge of the patient, or him who has to deal with this lapse from soundness of nervous function. To cure a local neuralgia, we must bring the attenuated life-force in contact with the debilitated part; and hence the practice so much in vogue just now of subcutaneous injection of "solutions of the life-force"—the various narcotics and sedatives, from which such direct and lasting results have been derived. The salts of opium are preferred—but atropin and nicotin, no doubt, would be powerful remedies so used.

In neuralgia, as in all other forms of disease, "remove the cause and the effect ceases," is sound and intelligent doctrine. If what has been said of the disease and its causes be well borne in mind, the best treatment will naturally suggest itself to the inquirer. It is not my purpose to load down your memories with mere empirical formularies for the so-called distinct diseases, but to bring you to a truly scientific apprehension of the principles involved, so that having a proper understanding of the cases presented to you, your intuitions will safely lead you to the best remedies for each case as it may arise. There is no high, easy and royal road to diagnostic ability and a marked competence of skill, other than through our instincts. First understand the laws of integrating of nervous tissues, their anatomical and intimate character, structure and relations, and a quick and correct apprehension of disintegrative and disruptive molecular actions and the analytical principles which underlie them will be easy. Thus endowed with a correct knowledge of healthy and unhealthy manifestations and conditions, with heat and cold, narcotic, magnetic and mechanical appliances at hand, you may intelligently and promptly succeed.

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*Paper read by* Dr. Geo. H. Perine.

Pardon me, Mr. President and gentlemen, if I occupy a few moments remote from the subject for discussion this evening, and allude to the year eighteen hundred and sixty-one, which has just gone into the grave of time, the past, the mighty sepulchre of all. The old and young are holding their joyous holiday festival to usher in the new year; but what hath the old year left them to cause such bliss. Joy and prosperity to some, deep sorrow to others, poverty and distress to many, and thousands have been made widows and orphans to feel the distress caused by war and pestilence. They have heard only tones of grief. Yes, in thy flight memorable year, many a tie of earthly love has been broken,

never more to be renewed, and fairer things have passed away, while tempests have shaded before nightfall the promise of a brighter morn. Nature heeds not the woes of mankind. We have wept for loved ones gone never to return, nor their voices to be listened to by us again. To what far regions have their spirits gone? From the land of souls none returneth to tell us of the "undiscovered country." There is a language, a voice that speaketh of a world to come, which tells us this is not our final resting place. Whatever then may be the dispensations of Providence, let us not sigh over the ties that have been broken, the losses we have sustained; but in the confidence of faith, and in the hope of immortality look forward to a brighter future.

We have watched the progress of this and other dental associations, and in the exercise of this pleasing duty, our convictions are strengthened in the belief that this and other associations are advancing the improvement of the human race; and while we congratulate ourselves on the increase and flourishing condition of our Society, (still in its infancy,) let us be guarded. "Weeds may be springing up concealed by golden grain, and when the harvest is gathered, evil and wo may befall us." Yet while we shall be glad to see at our meetings all who seek to give and receive professional and wholesome truths, and advance fraternal admonition, we should, as I said, be strictly guarded; our prosperity depends more on the *quality* than the *quantity*. Upon the *character* than the *number* of its members. While wishing to be liberal and advise liberality to all our professional brethren, we earnestly advise caution in granting membership. It is from the pride we feel in the noble standing of our profession, that we would have its members worthy and honorable supporters of its still extending dignity; and we trust, with the combined efforts of its members, by perseverance and intelligence to elevate the *Society of Dental Surgeons of the City of New York* far higher than any of us at present anticipate; and may the *star* of our profession shine in its beauty and splendor, and may harmony continue to prevail with us.

In conclusion, we tender our wish that you all may have a happy and prosperous New Year.

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## INTRODUCTORY LECTURE TO THE COURSE IN DENTAL PATHOLOGY IN THE NEW YORK PREPARATORY SCHOOL OF MEDICINE, SEASON OF 1859 AND 1860.

BY E. WILSON, M. D., DENTIST.

Dentistry, as a profession, presents itself to us in three principal aspects, viz: *medico-chirurgical*, *artistical*, and *mechanical*, with all of which the dental practitioner should be thoroughly familiar. But it is

only with the first of these that you, as medical men, are particularly interested, and which we are about to discuss.

We shall chiefly confine our inquiry to the pathology of dental and maxillary disease.

This subject has many points of especial interest to the medical man, and in presenting them I shall endeavor to be always sufficiently brief and to the point.

With this view I shall indulge in no copious descriptions, but shall aim at perspicuity as the leading idea, striving to keep the salient points of interest in a natural order of sequence, and thus shall endeavor to lead you, step by step, through easy and natural advances to the end of the course.

Before entering, however, upon our subject proper, I deem it highly expedient, in fact I regard it as an essential condition to an easy and successful course, that we should in the outset, form some well defined and just conception of the nature and objects of the subject proposed,—its exact position in the field of science,—the functions it is intended to fulfil, and thus to have some outline plan to cheer us in its pursuit.

We can, perhaps, best realize the physiological and pathological importance of this subject by referring briefly to the systems of organic life, to note the physiological relations of the dental organs in those systems, and to mark the pathological complications which must of necessity follow from their loss or diseased condition.

Here, gentlemen, to you it is of profound interest. Recall if you please the branches of medical science which have awakened in your minds the most absorbing interest, and riveted your closest attention during the course of studies you have pursued.

What a woundrous adaptability of organs to purposes does anatomy exhibit; what high hopes are centered upon physiological and chemical researches; and what interesting pathological information do these specialties reveal to us. Let me, therefore, invite your sympathy and attention while I rapidly glance in review of the principles of organized systems of life, which will serve to freshen our ideas of special organs and their functions.

We are accustomed to contemplate all the objects in nature under three divisions, or kingdoms, viz: the *mineral*, the *vegetable*, and the *animal* kingdoms. But we know that all these material objects are but varying forms and proportions of the same elementary substances that they are composed *of*, are fabricated *from*, the same primary elements, varying only in proportion and extent of organization.

We know that if we analyze the material substance of our own bodies, resolve it back into its original elements, we find these elements to be identical with those of the *vegetable* and the *mineral* kingdoms, viz: hydrogen, carbon, oxygen, sulphur, phosphorus, etc. We know

that these are the elements of all matter, which have existed since the creation, and which cannot be destroyed.

On these elements chemistry has spent its ingenuity, has exhausted all its present resources in vain efforts to decompose them further, to resolve them into parts, and we, therefore, regard them as the final elements of all matter. They are the alphabetical characters from which are composed every word in the great volume of nature. In combination they take on innumerable forms in the objects they present to us, but these objects can all be divided and resolved back into these original primary characters, and we can resolve them no further. A is a simple vowel sound, we can divide it no farther, and carbon is carbon, and cannot be subdivided, and so also of the other elements.

After the combination of these elementary substances in varying proportions to form the objects comprising these different kingdoms of matter, they present seemingly vast varieties, but we comprise them all under these three divisions, three different planes in an ascending scale of organization. For example, if we compare the objects in the different kingdoms, we find that the mineral kingdom, though compounded of the same elements yet in its structure, each particle is exactly homogeneous with every other.

If we break a small fragment from a piece of chalk or other mineral substance, this little fragment will be just as perfect a mineral as that from which we have separated it. This fragment had no especial function in the economy of the whole, and was, therefore, not essential to the existence as a mineral of the body from which it was taken.

How vastly different now if we consider any form of the *animal* or *vegetable* kingdoms. In the tree we have the *root*, the *trunk*, the *bark*, the *leaf*. In the animal we find a great variety of different organs, each an *essential part* of one individual whole, each having an especial function to perform in the vegetable or animal economy, the performance of these functions an absolute condition to the existence of these animate or living forms of matter.

Now what causes this great *variety* in the disposition of the elements of matter? What *cause* is at work moulding the elements of matter into all these multitudinous forms, and causing the ever active and constant change which is exhibited on every hand? Our every-day experience teaches, and science demonstrates, that there must be a cause. That there can be no effect but is dependent upon some adequate cause.

Thus we are forced to admit the existence of power adequate to these results. A power, ubiquitous, pervading all matter, ever busy, fabricating and destroying all these varying forms, and exhibiting to our wondering and admiring gaze all these wonderful phenomena.

What this power *is*, whence derived, is not our present business to inquire; but that such a power does exist, subjecting all matter to its

unrestricted sway, and that it operates, that it exhibits itself with the utmost uniformity in certain classes of phenomena. That it impresses upon, and makes inherent in all matter certain properties, that it prescribes laws, that it fixes to certain conditions certain and uniform results, is as palpable as that we ourselves exist. That our own existence in common with that of every other either organized or unorganized object, is through the operation *of*, and is the *result of* these natural laws, is equally certain. That the existence of our own bodies in a state of health, is dependent upon stated conditions, and it is these *conditions*, the operations of these natural laws, which we are about to investigate.

This creative power exhibits itself in three principal classes of phenomena, which we designate, for convenience of description, as three separate powers, or *forces*, as we call them, viz: *Gravitation*, *Chemical Attraction*, and *Vital Force*. For example, we lay hold of a book or a stone and raise it up; by this act its position is changed. Now what caused this phenomenon of motion? We very well know it was caused by our own volition, taking effect through our bodily organ the hand; but if we relinquish our grasp, however earnestly we may wish it to retain its acquired position, it will not do so, but will fall to the ground. This rule is invariable, and thus becomes a law, and is the exhibition of power entirely *independent* of our own, the law of gravitation.

Again, if we present sulphur to mercury under the stimulating influence of heat, we find that these two substances have a mutual sympathy—an affinity for each other. They readily enter into combination, both disappearing in a new substance which their combination has formed, viz: vermilion. And farther, if we now present iron in a divided state, as iron filings, to this substance vermilion, we shall find a still stronger affinity existing between the sulphur and the iron than that between the sulphur and the mercury, and in consequence of this a decomposition of the vermilion takes place, the sulphur repudiating its alliance with the mercury, and entering into a new one with the iron, forming the new substance, sulphate of iron, and setting the mercury free. Thus we recognize another law under which force is exhibited, and the exhibition of power under this law we designate as chemical force.

Now these mysterious forces, the constructing forces of the mineral kingdom, however wonderful in their exhibitions, they are still powerless to produce either vegetable or animal forms. Indeed, we know that these forces are actually antagonistic to the existence of organic forms, and are constantly operating towards their disintegration and destruction. We know that the force of chemical affinity existing between oxygen and carbon is so powerful, and the quantity of oxygen so abundant,

that this agent, oxygen, is constantly present and struggling with a mighty power to take possession of, and to appropriate to itself, the carbon which is so largely a constituent of organized bodies. That it *is* constantly appropriating this element from these bodies in precisely the same manner as the iron appropriates the sulphur from the vermilion, and with precisely the same result, viz: the decomposition of these bodies, and their elements forming new combinations; the carbon with the oxygen forming the new substance carbonic acid gas, which, mingling in the atmosphere, setting free the other, and thus, if there existed no antagonistic power, all these living bodies must soon be leveled in the dust. But, on the contrary, these organic bodies are constantly springing up, running through a certain cycle of change and disappear.

Here in the production of these organized forms we have an exhibition of power under a different law from the preceding, and we designate its exhibition in this class of phenomena as the *vital* power, or vital force. Under the laws of this mysterious force, a portion of matter springs into organized forms through which this vital phenomenon exhibits itself. This vital force is constantly taking possession of, and appropriating matter to the fabrication of living vegetable and animal bodies, which the other two forces are as constantly employed in pulling down. These living bodies are the handiwork of the vital force, and only exist in connection therewith—these different organs, the instruments which the vital force has constructed, and by *means* of which it is alone enabled to maintain its control over material substance.

All these organs are absolutely essential to these bodies. We cannot deprive the vegetable or animal system of any of these organs without doing violence to the fundamental conditions of its life.

If we strip the tree of its bark, or its roots, it can no longer exist—the vital force forsakes it—it is dead. Its dissolution immediately commences, and it is, by what we term decay, gradually resolved back into its original unorganized elementary form of matter.

So, too, of the animal system; if we deprive it of any of its essential organs, precisely the same results ensue. And why? Because these are the instruments by which alone these bodies are enabled to seize upon and to assimilate external matter into its own substance, and such assimilation which we term nutrition, is the fundamental condition of their existence.

(*To be continued.*)

## COMMUNICATIONS.

Mr. Editor:—How is it that some teeth, and often of the same manufacturers, will break up in use, while other teeth of the same makers will wear (seemingly) like iron: can you tell us how this is?

[The time required for teeth to *break* up in the mouth, by ordinary mastication, will depend entirely upon the power the particles of which they are composed possess of holding together, under the concussion consequent upon mastication; and this power (strength) or the want of it, will depend upon a great many vital circumstances which have, or which have not, been conformed to or with, in some one or more of the various stages through which they pass before completion. To say just what the reason is that a set of teeth has failed in any given case, would, in our judgment, be somewhat difficult, without a perfect understanding of all the circumstances under which they were begotten, and the subsequent usage they had received. We can only mention some of the causes that are unmistakable evidence of weakness (constitutional defects) which render it morally certain that failure, sooner or later, will result. The first and most prolific cause of failure, is the lack of proper position given the artificial teeth in mounting them. When the upper teeth flange out at an angle of 45 degrees from the plane of the plate, and the under teeth strike the inside slope of the crowns of the front teeth, whatever force is exerted against the upper teeth, is exerted at nearly a right angle with the pins, and if the pins possess more strength than the teeth, the latter will break up, or *vice versa;* providing the denture is retained sufficiently firm to sustain the plate against such odds.

There never can be a porcelain tooth made that possesses sufficient strength and translucency to stand the force so disadvantageously applied. And yet, how often we see dentures made by practitioners of experience, flanging out so that the cutting edges of the front teeth are from one-half to three-fourths of an inch outside of the centre of the ridge. Teeth thus arranged are saved from being broken to pieces by the force of occlusion, simply because the law which was relied upon to retain the denture in position, is made inoperative by inharmonious surroundings. Truth and error will never affiliate; they don't seem to like to work for one common end; where error has taken possession of the long arm of the lever, true principles, under these circumstances and for the time being, kick the beam, and down goes the denture, saved from destruction by the amount of error entering into its construction and arrangement, and for this reason failing to answer the purposes for which it was intended.

Teeth set upon the centre of the ridge are much more serviceable to the wearer, and more likely to become broken for that very reason. They have to sustain not only the direct crushing force of the masticatory muscles, but also any leverage upon substances held in the hand of the wearer. The downward and outward force thus combined, if centred on one or two teeth, will very likely detach the particles, and will ultimately break up, or the constant force exerted will break the pins in two. Too much density in the body of the teeth renders them brittle, and more likely to break, both from the heat required in mounting them and by use afterwards. Beauty and great strength seem incompatible, and teeth that are the nearest in shade and general tone to the best productions of Nature, have necessarily less powers of endurance. The best teeth may be ruined by the soldering heat required in mounting teeth on metallic bases. No porcelain structure will retain its integrity when too suddenly expanded or contracted. Great care should be exercised, and sufficient time taken, in heating and cooling all porcelain teeth. If the heat is applied to the stays or backing before the body of the teeth is properly heated, the platina pins are expanded, and a strain is produced upon the teeth. If the cold air, after the completion of soldering, is allowed to come in contact with the unprotected backing, the pins suddenly contract, carrying a thin cylindrical portion of the tooth body with them; this injury being entirely covered up by the backing, is not discovered until failure in the work has rendered repairs necessary. The dentist may never know the cause of the failure, and, more than likely, will blame the teeth for defects which were not fairly chargeable to them. Riveting the pins too close on to the backings is another fault, and where an excess of borax is used in soldering, is very apt to fracture the teeth. All excess of borax used as a flux for soldering, is by the high and long heats required in soldering gold work converted into glass, (glass of borax,) which insinuates itself over the backing, and between it and the tooth, cementing both firmly together; the unequal contraction of the tooth and metallic backing will, under these circumstances, often fracture the teeth. No more borax should be used than is absolutely necessary to cause a proper flow of the solder; and the case, after being soldered, should be immersed in strong muriatic acid, slightly warm, until all the glass of borax is dissolved. This should be done immediately after the investment is removed, and before the case is entirely cold. The contraction most likely to fracture the teeth or their gums, is after the case is reduced in temperature below blood heat; the investment should be removed under water about blood heat, and the case placed into acid of the same temperature immediately. This part of the

operation should be conducted in the absence of all currents of cold air. The best teeth may be spoiled by the careless manipulations of the dentist; or naturally weak teeth may retain whatever strength they originally possessed, when manipulated properly, and even last in the mouth much longer than good teeth badly manipulated. Many teeth, when they come from the maker's hands are imperfect. If the teeth are cooled too suddenly after backing, they are often checked into innumerable fractures, which are invisible to the naked eye, and, of course, their strength is greatly impaired. The competition in the price of teeth has not probably added much to their powers of endurance; anything well done requires time to do it, and time ought to be worth money. Some things can not be done well in a hurry, and we are of the opinion that making teeth is one of them, and making artificial dentures is another; this, however, is only our individual opinion.—Ed.]

## VULCANIZED RUBBER FOR ARTIFICIAL TEETH.

BY G. L. ELLIOTT, DENTIST, TORONTO.

The fortunate discovery of Vulcanized Rubber, as a material for plates for dental substitutes, I hope will be deemed a subject of sufficient importance to answer as an apology for a few brief remarks upon its peculiar and unquestionable merits. And I have thought it not altogether unpardonable if I should do so through the medium of a letter circular, which may perhaps be of some interest to the public, and more especially to those who have had the misfortune to lose, in part or altogether, those highly useful and ornamental organs, the teeth.

Vulcanized Rubber has been very cautiously adopted by the dental profession; indeed, it never was accepted until it had withstood such severe tests as other materials formerly used have never been subjected to. It is now generally used both in the United States and England. In the city of London, particularly, it is used by the most respectable dentists. And I will take the liberty to mention Mr. Rahn, formerly of Toronto, as one who has adopted it in his practice. Mr. Rahn was well known here as a superior surgical and mechanical dentist, and he now stands at the head of his profession in London, England.

But with the abundant proof of the utility of Vulcanized Rubber, we have only to add the universal testimony of those who have formerly worn gold plates and have now substituted the rubber for them. That it is much more comfortable, I may say, perfectly so; that it has a very great affinity with the gums, *are facts* which cannot be questioned. Rubber plates are also very light, which is another important item to be considered. And we are therefore enabled to add the more, so as

to restore the face to its original form, and give it a roundness of expression.

Unlike metallic plates, they are not injured by a fall: how many gold plates have been ruined by a fall even of a few inches. Rubber plates may be dropped a hundred times without the slightest injury.

I have been inserting teeth upon Vulcanized Rubber sufficiently long in a practical point of view, to discuss, and I believe, with an unbiased mind, its merits and demerits. And I need not add, that I take great pleasure in recommending it as a base for artificial teeth. The impression being taken with "Gutta Percha," and metals being dispensed with altogether in the rubber process, thereby escaping the shrinkages to which metals are subject, enable us to obtain a perfect fit of the jaw. Rubber being also a vegetable production, and being a less foreign substance to the human system than gold or other metals, is found to harmonize perfectly with the gum, and to produce no irritation in the mouth from pressure. Vulcanized Rubber is found to be especially applicable to cases for the under jaw.

I have had such unparalleled success with parts of sets for the under jaw, that I could scarcely believe it to be real. I will make a few brief remarks upon those cases in which gold plate has formerly been used. First, then, more time, more expense, more trouble, both mentally and physically, have been given to partial *under* sets, inserted upon gold plate, than all other kinds of dental substitutes partial or entire combined; and all comparatively to no purpose. I have had any number returned of my own make, and I have seen as many made by other dentists to as little purpose.

The reason is, and I express the opinion of others as well, that the formation of the alveolar process of the under jaw when sufficiently absorbed is most unfavorable for a metallic plate of any kind. Also, that the bone of the under jaw is so thinly covered with gum, and the mucous membrane so exceedingly thin and delicate that the slightest pressure of any metallic substance will produce irritation.

Dr. Harris, professor of the first dental college ever established, and a man of over forty years' professional experience, in speaking of partial sets for the under jaw on gold plate, (I mean the double teeth for either side of the under jaw,) says, "It is exceedingly difficult, and sometimes impossible, to replace the others in such a manner as to render them serviceable."

In such cases, then, Vulcanized Rubber comes to our aid, and we are able to insert them with perfect success.

Where a person has lost even one double tooth it can be replaced and made comfortable and useful, which has formerly not been the case. Teeth of replacement for the under jaw have always been a subject of serious consideration with the dentist, *as in neither jaw does the*

*loss of teeth so much change the expression of the countenance, and alter the whole contour of the face as the lower jaw. To give the face then a roundness of expression it is especially requisite that the under jaw should have its full complement of teeth, either natural or artificial.*

And it is not surprising that both patient and dentist hail with the greatest pleasure the discovery of a material which relieves the former of suffering and annoyance, and the latter of a great deal of trouble. Vulcanized Rubber for teeth has been in use in the United States for over six years, and therefore has been thoroughly tested. Equal in durability to gold, and possessing much greater strength and tenacity, I have seen them placed on the floor and a man stand upon them with his whole weight without in the least altering their shape.

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## INDIA RUBBER PLATE FOR TEETH.

BY FRANCES D. GAGE.

Anything that adds to comfort or usefulness, should be a matter of universal interest, and a new invention that helps to repair the marred or broken body, becomes especially so.

The new method of setting teeth upon Vulcanized India Rubber, is one that bids fair to be a great amelioration of the pain and aches of suffering mortals, and for the benefit of all whom it may concern, I take pleasure in giving my own experience in this matter.

It is thirty-seven years (away back in the days of merry girlhood) that my first tooth trials began, when the old doctor placed his big nail against the suffering member, and shattered it into fragments with his shoe-hammer. It was the beginning, not the end. Tooth after tooth went into the claw of the pullikers; fore teeth were decayed, and twenty years ago their places were filled with porcelain set upon pivots. Oh! the agony of those years. Then all those old pivots and stumps went their way, and teeth upon gold plate filled the vacancies above. Gold plate, cutting, wearing, pressing, unyielding, tormenting the upper jaw; but no dentist that I found had skill to supply the wants of the lower.

To make a long story short, sixteen years of effort with dentists, east and west, only resulted in a partial success, though causing me much intense pain and great expense.

Seeing notices in the western papers of the extraordinary skill of Dr. J. Payne, formerly of Ohio, now of St. Louis, Missouri, I resolved to put my mouth under his hands for repairs. I entered his office for that purpose at ten o'clock Thursday morning, had two teeth (my last) extracted, and casts taken of my mouth immediately. Friday morning the teeth were selected at the dental depot, St. Louis, and I ate my supper with them on Saturday evening at six P. M., with far less pain

than I have experienced in eating with old sets after six months' trial, notwithstanding the soreness of the gums from the recent extraction of the teeth, and with as little pain as I could have eaten a meal, after having had two teeth drawn, at any other time. I have now worn them four weeks, (long enough to test them fairly,) and each day has added to my satisfaction in this new arrangement. I most heartily recommend Dr. Payne and his associates, Drs. Dunham and Peebles, to all unfortunates like myself, who have been seeking for help and finding none, for the relief of the teeth.

To my lady friends, I would say, I bite off the end of my thread with as little care or thought as I did at sixteen, and have done giving the boys the crust of my biscuit. There is not the least bad taste or odor to the rubber, and just enough spring to it not to cut or wear the gum, while the suction is far less painful than upon metal plate.

One thing more: I know any number of ladies and gentlemen who wear teeth for beauty to church or to a party, but have neither comfort nor use in them. Dr. Payne, I am sure would relieve you in thirty-six hours, of the trouble of putting your teeth in your pocket, when you need them most, *i. e.*, at the supper table.

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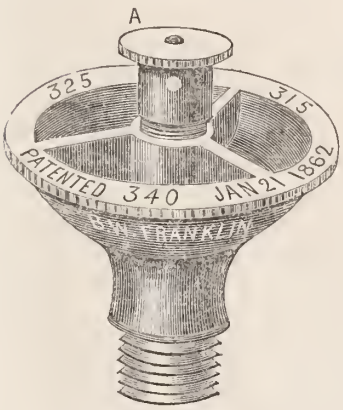


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We have received a large number of letters similar to the following, but our want of space precludes their insertion here. We thank these gentlemen for the expression of their appreciation of this great improvement.

*Utica, January 24th*, 1862.

B. W. Franklin:

*Dear Sir*,—Your improved Thermometer ("Fusible Gauge") came safely to hand, and we have made a fair and impartial trial of it, and can say that in our opinion it surpasses all others in testing the heat in vulcanizing. It gives us pleasure in adding our testimony to its superiority.

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# EDITORIAL.

We desire to say that the article in the November No. of the "Vulcanite," signed "American Hard Hard Rubber Company," in which reference was made to the course pursued by Mr. Toland, as shown by quotations from the "Dental Register," was intended to apply to that part of the Register under the control of Mr. Toland, and not to the "Register" in general, whose Editors had taken an honorable and gentlemanly course throughout this unpleasant controversy. We regret that the statements had not been qualified so as to apply to Mr. Toland's articles, and not to the general course of the "Dental Register." We take pleasure in making the foregoing statement, deeming it due both to the "Register" and the American Hard Rubber Company.

## TO OUR PATRONS.

The present number closes the second volume of the "Vulcanite." Those of our subscribers and advertisers who wish to continue their patronage will please inform us of their intentions before the 1st of May next.

It is contemplated to enlarge the "Vulcanite" so as to increase its original matter, and place it among the best, as it now is the cheapest, Dental Journal in the country.

Its circulation is by far the largest of any other Dental Journal published in the United States. At first it was intended as a medium through which to bring the Vulcanite Base to the notice of the profession.

This object having been attained, and such encouragement extended to us from all parts of the country, has determined us to go on and make the "Vulcanite" a first class journal.

The licensees of the Company and advertisers will be supplied regularly

as heretofore, *free of charge*. It will be furnished to subscribers at 50 cents a year, payable in advance.

Contributions to its pages are respectfully solicited. All communications for the "Vulcanite" will be illustrated with cuts when necessary to a proper understanding of the subject.

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## "WHO ARE DENTISTS?"

This seems to be the all-absorbing question in the minds of some, and it is likely to become involved in more uncertainty and doubt, if we are to accept as sound ethics doctrines put forth by self-constituted authority. It is not at all strange, that when attempts are made to divorce a profession by ignoring not only its imperative demands upon us, but also all that class of comprehensive minds who look upon our profession as being peculiarly circumstanced, requiring of its members more varied capacity for the fulfilment of its high requirements than any other. "Shall the right hand say to the left, I have no need of thee?" or shall we go on as in times past laboring to make our profession useful, and by perfecting ourselves in all its departments, when our usefulness will not only command that respect from neighboring practitioners that our merits fairly entitle us to, but it will open a sure and easy highway to the confidence of an appreciating public. The day is past for half-developed professional characters to attempt by their opacity to throw shadows across the pathway of the earnest seekers after a more full, comprehensive and perfect light. All that class of gentlemen who, arrogating to themselves *titles*, and with ostentation proclaim to the world that the soiling of one's hands in honest efforts to benefit our sin-cursed race is so "shocking" to all "common sense," we would advise, that when "his blood is" again "but half ærated," duty demands that he go into the open air, and by holding communion for a time with nature in her ever virgin purity, will, on returning to his domicil, be better attuned "to discharge a duty to himself and his profession," in particular. All those who have but half acquired a knowledge of the many difficult manipulations connected with the construction of artificial dentures, are not to be blamed for a want of appreciation of the talent, skill and scientific attainment requisite to be employed in their harmonious construction. We can well remember our first crude attempts at inserting artificial teeth, and our minds revert to those days with nought but painful reminiscences. We have often been forcibly impressed with one great truth, that "a little learning is a dangerous thing;" many new beginners, in any department of developmental labor, are apt to be satisfied with the realization of their first crude experiences, and because of their little measure being filled to overflowing by the generous payment of the first instalment due to their obedience, they ignorantly infer that they have reached the acme of human attainability and its reward. Some men are so constituted that they live out their little existences in a "peck measure," while the true and earnest seeker after truth has unlimited space for his expanding and increasing capacities, and is not over "shocked" if his hands should become soiled in manly efforts to benefit his kind. Diamonds of the purest

water are often encased in a rough external crust, and require the labor of hand and head to develop their pristine beauty, and that class of men who, with unholy, nay, impious contempt of omnipotent decree, attempts to ignore labor, has, in our judgment, "a hard road to travel."

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## SOCIETY OF DENTAL SURGEONS OF THE CITY OF NEW YORK.

It is gratifying to be able to state, that this Association is far more flourishing this winter than at any other time since its organization.

The second year of its existence is drawing to a close, and, judging from the interest and zeal manifested by its members, we may calculate upon its future prosperity and usefulness.

Though the attendance is much larger than last winter, nevertheless, there are scores of practicing dentists in the city and immediate vicinity that do not seem to appreciate the importance of associated efforts in behalf of a profession to which they belong.

Many seem content with the little knowledge they possess, and evince no desire for further acquisition; while many never have attached sufficient importance to their profession as such, to acquire a knowledge of its details; consequently, they cannot be expected to take any interest in efforts calculated to elevate it to a position and standard among the learned professions.

We regret that we have not space to give in full the papers read and discussions had upon the various subjects before this body.

This Society has held weekly meetings for some time past, and purpose to do so for some time to come.

The profession and public are cordially invited to attend at Room No. 24, Cooper Union, on Wednesday evenings.

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## PATENTS GRANTED.

No. 34,203.—B. W. Franklin, of New York City, for Improved Fusible Gauge for Temperature:

*Specification.*—I claim the described Fusible Gauge, the fusible alloys being used in the peculiar manner specified, thus indicating the temperature by the condition of the alloys, whether the same be granular, semi-fluid or fluid, substantially as set forth.

No. 34,223.—S. S. White, Philadelphia, Pa., for improvement in the Manufacture of Artificial Teeth:

*Specification.*—I claim the manufacture of mineral teeth with pins having heads, d, d, d, at their outer ends, substantially as and for the purpose specified.—*Scientific American, Feb.* 8, 1862.

# BUSINESS NOTICE.

## THE VULCANITE DENTAL AGENCY AND DENTAL DEPOT,

No. 73 BLEECKER STREET, NEW YORK.

Our Agency is removed to the large building, No. 73 Bleecker Street, first door from the Manhattan Savings Bank, corner of Bleecker Street and Broadway, New York.

The constantly increasing business of this Agency, and the large number of orders we are daily receiving from all parts of the country for every description of dental goods, have determined us to open a Depot in connection with the general business of the Agency, at which place the profession can be furnished with every thing required in the practice of dentistry. Our arrangements with manufacturers are such as to enable us to furnish every article required by the profession at the manufacturers' lowest cash prices. We shall offer all kinds of dental goods to cash customers at a discount from prices heretofore paid by them. We intend to keep the best selected assortment of Teeth (adapted to all the different styles of work) that was ever offered for sale at any one Depot in the country, comprising all the best makers' Teeth, viz: Porter's, White's, Mintzer & Co.'s, Jenness & Rubencame's, Oram & Armstrong's, Stockton's, Kersing's, Klein's, Neall's and Eccleston's, making an assortment to select from not to be found at any other establishment in this city.

We are prepared to furnish Operating Chairs and Office Furniture, Laboratory Tools, Apparatus and Machinery, Rolling Mills, Forges, Furnaces, and Lathes, and in fact every thing required by the dentist, including the largest and best assortment of Vulcanizers to be found in any other establishment. Our terms are cash. We are willing to divide the profits in the start with paying customers; *others we do not want.*

Those ordering goods to be forwarded by Express, to save expense of collecting and large discounts, will send us a draft on New York, or other current funds, in amount sufficient to cover the bill of goods ordered, and any balance over will be returned in specie, with the package. We are compelled to this course from the fact, that the discounts in this city are in many cases, more than double to what the exchange would be on money at the place where the Dentist resides, and where their money is at par. Any Dentist residing at a distance from the city ordering five sets of teeth at a time will be allowed a discount of five per cent. from the lowest retail cash price that the same teeth can be bought for at any other place in the city. In addition to the five per cent., we will send to his address Twenty sets of teeth from which he can make selections; we will pay the express charges both ways, thus giving our customers at a distance every advantage that the City Dentists enjoy. Every article sold by us not answering the description, will be taken back without expense to the purchaser.

Address B. W. FRANKLIN, Agent,
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## BOOKS RECEIVED.

The "Dental Register of the West." Edited by J. Taft and George Watt. J. T. Toland, publisher and proprietor, Cincinnati, O. Monthly, at $3 00 per annum in advance.

The "Dental Cosmos." Edited by J. D. White, J. H. McQuillen, and Geo. S. Ziegler. Jones & White, publishers, Philadelphia, Pa. Monthly, $2 50 per annum in advance.

"The Southern Dental Examiner." Edited by J. P. H. Brown and George J. Fouke. Brown and Hape, publishers and proprietors, Atlanta, Ga. Monthly, $1 00 per annum in advance.

"Cincinnati Dental Lamp." Edited by J. M. Brown, Cincinnati, O. Quarterly, 25 cts. per annum in advance.

The "American Dental Review." Published by A. M. Leslie, St Louis, Mo. Quarterly, $1 00 per annum in advance.

The "Dental Enterprise." Edited by H. Snowden, Baltimore, Md. Monthly, 50 cts. per annum in advance.

"Revue Odontotechnique." Edited by T. R. Hammond, Paris, France.

"L'Art Dentaire." Edited by A. Preterre, Paris, France. Monthly, $5 00 per annum.

We would advise every dentist in the United States to subscribe for one or more of the above journals. Parties sending to us for dental goods can enclose the price of subscription, and we will have either of the above named journals forwarded as per order. Try them—it would be a paying investment! better than money at interest. Dividends declared quarterly and monthly are paying institutions. *We repeat*, try them and see.

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# To the Dental Profession.

I take this opportunity to inform the Profession that W. B. Roberts is not my Successor. He did not purchase from me, nor are his productions such as I wish my name connected with.

JOHN M. CROWELL.

# FRANKLIN & SPROULL,

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## J. TAFT and GEO. WATT.

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Business Communications to JNO. T. TOLAND.

The *Register*, issued MONTHLY, is always *fresh*, therefore indispensable to the practitioner who desires to keep pace with the inventions and improvements of the times.

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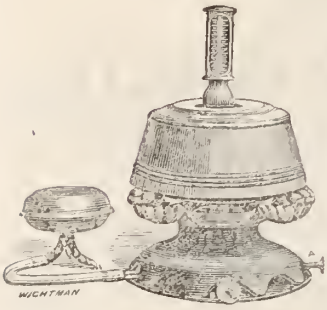
# HAYES'
# High Pressure Vulcanizing Oven Improved.




Vulcanizes one piece at 320° F, in 40 minutes with one fluid ounce of Alcohol; produces no smell of Rubber in the rooms, and forms none of the black sulphuret on the Flasks.

PRICES: All complete with fixtures, etc.

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| For one Case, | Malleable Iron | $10 00 |
| " " | Copper | 11 00 |
| " two Cases, | do. | 12 00 |
| " three do. | do. | 13 00 |

Pamphlets sent on application gratis.

Address **GEO. E. HAYES,** *corner of Main and South Division Streets, Buffalo, N. Y.*, or, Vulcanite Agency, 73 Bleecker Street, cor. Broadway, New York. B. W. FRANKLIN, AGENT.

The Vulcanizing Oven has now been in extensive use for nine months, and the brief extracts below, taken from letters promiscuously received—none of which were solicited, and most of the writers personally unknown to me—show the spirit in which it was received by the profession. The Packing Joint, the Alcohol Burner, and the mode of securing the Flasks have been improved, rendering the whole apparatus the most durable, as well as the most efficient Vulcanizer in use.

## TESTIMONIALS.

"BOSTON, *May 6th*, 1861.

"The ovens are giving good satisfaction and work well, doing all that is claimed for them."

"AFTON, *June 25th*, 1861.

"I have received and used the oven; it works to a charm in every respect."

"AFTON, *July 9th*, 1861.

"My oven works very nice; I am much pleased with it."

"ERIE, PA., *July 3d*, 1861.

"I have used your oven vulcanizer a great many times in the three months since I bought it of you, and like it very much."

"ROCHESTER, *July 15th*, 1861.

"I have used the three sizes of your ovens, and know them all to work well."

ST. JOSEPH, MO., *July 27th*, 1861.

"Dr. H. Having used a heater holding six or seven gallons, thought your pocket instrument looking like a plaything. We vulcanized in 40 and in 35 minutes, and prefer the latter time. We both think it far ahead of anything in the way of heaters."

ST. JOSEPH, *November 13th*, 1861.

"The heater you sent me continues to work like a charm every time, and I would not take a good-sized farm for it, if I could not get another."

MARSHALL, MO., *July 31st*, 1861.

"I sent to Samuel S. White, of Chicago, for the best vulcanizer he had, and received one of your ovens, which can be used without water. My previous one was a boiler. The head blew off when at 315°, passing up through the ceiling, and struck a rafter. The report was heard over a mile. The flask broke and struck me in the cheek and arm, making fearful wounds. I like your oven very much, and do not feel that I am going to be blown up."

INDEPENDENCE, IOWA, *September 28th*, 1861.

"I bought one of your vulcanizing ovens of Samuel S. White, and I am much pleased with the trial."

"CONNEAUT, OHIO, *September 28th*, 1861.

"The oven came safe; I have vulcanized four pieces in it. I cannot find words to express my satisfaction; I am perfectly delighted—so simple, and all contained within a nutshell. I have had experience with a number of machines. My last before this exploded, the evidences of destruction lying about in greater profusion than at 'Manassas.'"

"UTICA, *August 17th*, 1861.

"I have used the vulcanizer you sent me, and am greatly pleased. I think it a great improvement."

"ST. THOMAS, C. W., *September 30th*, 1861.

"This vulcanizer I bought of you works so well, I feel it my duty to give you a certificate of recommend. I am very much pleased with it."

"CINCINNATI, *January 9th*, 1862.

"We are using the three-case oven almost every day and think it just the thing, far ahead of anything else out. We like it better and better the longer we use it."

# W. B. ROBERTS,

(*Successor to J. M. Crowell,*)

# TEETH MANUFACTORY

AND

# DENTAL DEPOT,

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NEAR BOND STREET.

Having purchased the entire establishment heretofore known as Crowell's Teeth Manufactory, I have spared no pains or expense in adding new models of the most approved styles and shapes for the Vulcanite, Continuous Gum, and all kinds of mineral teeth required by the Dental Profession. I am now prepared to furnish at wholesale or retail, an article equal in strength, shape, and natural appearance to any in the market, at lower prices than can be had in the United States or Europe. I have also connected with my manufactory a Dental Depot, from which I will furnish all articles required by dentists at as low prices as can be had at any other establishment in New York. Soliciting your patronage, I hope you will call and examine my goods before purchasing elsewhere.

Platina Plate, $6.50. Gum and Body for Continuous Gum Work, Gold Foils of the best manufactories, and all articles required by the Profession, at the lowest cash prices.

### LIST OF PRICES.

| | |
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| Block or section teeth for vulcanite base or cheoplastic work, with pins, | 20 cts. |
| do do do with holes, | 15 " |
| Single gum teeth for vulcanite or cheoplastic base, with pins, . . | 15 " |
| do do do plate work, | 15 " |
| Continuous gum teeth, with Roberts' one pin, . . . . . | 8 " |
| do do two pins, . . . . . | 8 " |
| Plain teeth for vulcanite or cheoplastic base, . . . . . | 8 " |
| do do plate work, | 8 " |

A discount of 20 per cent. will be made on all bills for teeth amounting to $50 and upwards, and 25 per cent. on all bills of $100 or more, thus enabling dentists who wish to buy at wholesale to save, at the above prices, about 50 per cent. upon the prices charged by other establishments. I am induced to offer teeth on such liberal terms to my professional brethren, because I am well aware that all money earned by the dentists is from his own personal labor; and a dollar saved by the purchase of teeth is easier made than to fill teeth for it, and might as well be placed to his credit as to go to enrich the already rich manufacturers. Very few dentists who make mechanical work use less than from fifty to one hundred dollars' worth of teeth in a year, which by judicious purchases would, in a few years amass quite a fortune for the hard-working dentist.

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| Office Right, | $100 00 | Prepared Gum, per lb., | $3 00 |
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| Stove, | 7 00 | Packing Instruments, | 3 00 |
| Flasks, | 35 | | |

BROWN & HAPE, Atlanta, Georgia.

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# THE VULCANITE.

A QUARTERLY JOURNAL,

DEVOTED TO

THE SCIENCE OF MECHANICAL DENTISTRY.

EDITED BY

## B. W. FRANKLIN.

PUBLISHED BY THE AMERICAN HARD RUBBER COMPANY.

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**TERMS—FIFTY CENTS PER ANNUM.**

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# D. H. PORTER,

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**THE CHEAPEST DENTAL DEPOT**

FOR THE

## Latest Improved Teeth,

OF ALL KINDS,

**Forceps, Pluggers, Scalers, Excavators, Burrs, Chairs, Spittoons, Lathes,**

TOGETHER WITH A GENERAL ASSORTMENT OF ALL KINDS OF

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NOTWITHSTANDING "*Secession*," the world will keep moving, and Teeth continue aching; and in view of these facts, we have continued manufacturing, in spite of the hard times,—which happily are now passing away,—and find ourselves provided with a large stock of our

## Celebrated Instruments,

## CHAIRS, LATHES, TEETH,

AND

**Everything required in the OPERATING-ROOM and LABORATORY, at very low Prices, and liberal Discount.**

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# PERSIAN BALM.

I beg to call the attention of the profession to the above article as a Dentifrice, as well as general

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for Dentists' use. It is made of the finest materials, put up in very large bottles, sells to Dentists at $2 per dozen, making it the most perfect Toilet Soap as well ao the cheapest in use. As to its excellent qualities, as a Dentifrice, there can be ns doubt. The experience of some of the best in our profession has been greatly in its favor. I am permitted to refer to the following gentlemen, well known to the profession, who have used it, and recommending it to the patients.

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" W. H. ELLIOT, Montreal, C. E.
Dr. D. VANDERBURGH, Oswego, N. Y.
" M. W. FRENCH, Toronto, C. W.
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Dr. A. BLAKESLY, Utica, N. Y., and many others.

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Has removed to 114 Hanover Street, Boston, where all Articles and Apparatus required by the profession in the prosecution of their work, will constantly be kept for Sale at the following prices, viz:

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| Office Rights to use the Goodyear Patent Vulcanite Base for Artificial Teeth, in all Towns having over 5,000 inhabitants; in Towns having less than 5,000, | $75.00<br>50.00 |
| Best prepared Rubber per lb., | 3.00 |
| Sheet Gutta Percha " | 2.00 |
| Packing and Scraping Instruments, each, | 0.25 |
| Whitney's Screw Top Heater for two cases, | 13.00 |
| " " " with Franklin's "Patent Fusible Gauge," | 14.00 |
| Hayes' Vulcanizing Oven, two cases, | 12.00 |

All other kinds and styles of Vulcanizers furnished at manufacturers' prices.
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| Plate Incisors, | @ 8 cents each. | Gum Incisors, | @ 15 cents each. |
| do. Cuspidate, | @ 8 " " | do. Cuspidate, | @ 15 " " |
| do. Bicuspids, | @ 8 " " | do. Bicuspids, | @ 15 " " |
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Pivot Teeth, @ 8 cents each.

☞ Teeth made for Allen's Continuous Work, @ 9 cents each.

Plain Teeth . . . . . for Vulcanite Gum Work, @ 9 cents each.
Single Gum Teeth . . . " " " " @ 18 cents each.
Block or Section Teeth . " " " " @ 18 cents each.

We spare no pains in the manufacture of our Teeth to have them of the most approved shapes now in use, with life-like color and appearance. Dentists may order by mail or express. All orders will be promptly attended to.

Teeth mounted for Dentists, Gold and Silver Plate cut to pattern, and Teeth selected to fit casts by sending them to us.

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Where can be found at all times a splendid assortment of the most approved kinds of RUBBER and PLATE TEETH of all kinds, at wholesale and retail; and can furnish every thing a Dentist may desire in the line of Dental Goods as CHEAP as the same article can be purchased elsewhere. OLD GOLD TAKEN IN EXCHANGE FOR GOODS. Also Agent for the A. H. R. CO. for the sale of Rubber and Office Rights to use it.

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# Barker's Ethereal Preparation for Vulcanite Work.

This preparation is offered to the profession, and guaranteed to possess the following advantages. It will cause the piece of work, *in every instance*, to come from the Heater clean and smooth, with the internal surface ready for the polishing brush wheels. The external surface (except at the gates for the surplus material) will be ready for the Emery Paper, Pumice and Cork, doing away with the necessity of scraping and filing.

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# DENTAL DEPOT,

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The co-partnership heretofore existing under the firm of *JONES & WHITE*, is dissolved, to take effect May 1st, 1861. All debts due the firm at the New York House, to that date, together with all charges for Gold and Silver Plate, and Jones & White's Gold Foil to this date, will be settled by me at my office 710 Broadway, New York, where I shall keep constantly on hand a large and well-selected stock of TEETH, of Messrs. Orum & Armstrong's manufacture, which are pronounced by many first class dentists a superior article both for strength and beauty. Three first premiums awarded for best Artificial Teeth. Also, an entire new stock of Dental Instruments, of the very best manufactures, together with every article used in the profession.

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